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ABSTRACT

This document is a revised edition of a monograph which first appeared in 1964 on the training of vocational teachers in 12 countries of Western Europe. The revision has been undertaken because of the changes which many of these countries have introduced in their systems of vocational teacher recruitment and training. As previously, the monograph outlines the current training patterns for vocational teachers in the 12 countries covered: Austria, Belgium, Denmark, France, Federal Republic of Germany, Ireland, Italy, Netherlands, Norway, Sweden, Switzerland, and the United Kingdom. It also outlines some of their plans for the future and discusses teacher recruitment, educational trends, and conclusions of the 12-country survey. (Author/JS)

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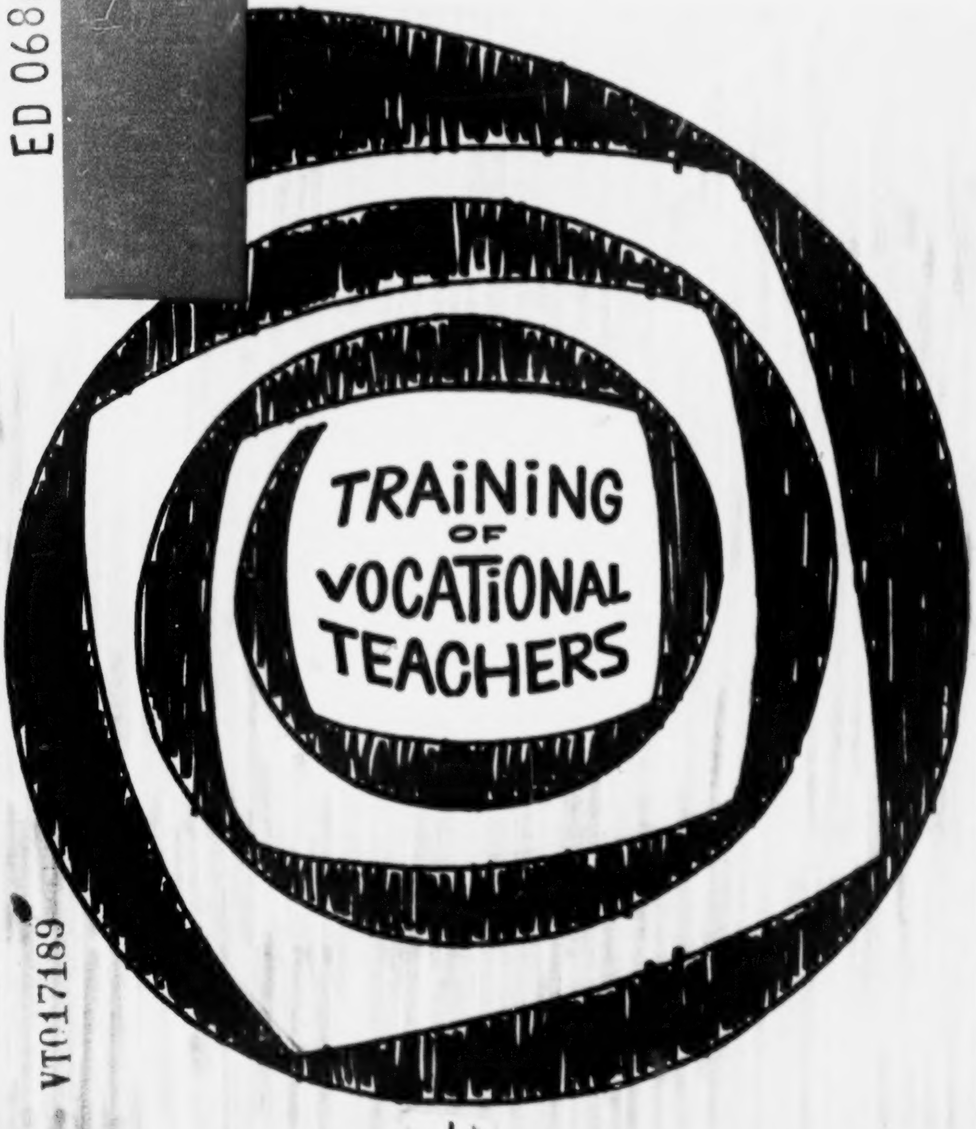

# TRAINING OF VOCATIONAL TEACHERS

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## Training of vocational teachers

More vocational teachers are required today than ever before and they need to have far better training than in the past. A larger proportion of the labour force is receiving vocational training. This training has to be given with maximum efficiency. It will also have to be provided on a continuing basis, as the concept of life-long education is put into effect, and technological development accelerates.

To meet this demand vocational teachers must have more efficient initial training. They also require systematic upgrading and updating of their pedagogical and technical skills.

This monograph describes how these and other problems are being tackled in twelve countries of Western Europe.

## Contents of this monograph

This monograph comprises descriptions of the framework in which vocational teachers are working in the twelve countries; the background and development of present systems of vocational teacher recruitment and training, their administration, aims and methods; the status of vocational teachers; current and anticipated numerical requirements; initial and further training courses available; staffing and equipping of the courses; financial assistance available to student teachers; examples of syllabi.

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# TRAINING OF VOCATIONAL TEACHERS

CIRF Publications

ILO, Geneve, 1969

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## PREFACE

This is a revised edition of a monograph on the training of vocational teachers in twelve countries of Western Europe which first appeared in 1964. The revision has been undertaken because of the changes which many of these countries have introduced in their systems of vocational teacher recruitment and training. As previously, the monograph outlines the current training patterns for vocational teachers in the twelve countries covered: Austria, Belgium, Denmark, France, Federal Republic of Germany, Ireland, Italy, Netherlands, Norway, Sweden, Switzerland, United Kingdom. It also outlines some of their plans for the future.

The revision is one of a number of steps taken recently by the ILO in connection with training staff. Other action has included collaboration with the United Nations Educational, Scientific and Cultural Organization in work towards a joint Recommendation concerning the status of teachers, which was adopted by a Special Intergovernmental Conference on the Status of Teachers, held in Paris, France, in 1966, and the organisation of a Technical Meeting on Training of Teaching Staff for Industrial Training Schemes in Torino, Italy, in 1969.

The ILO wishes to express its thanks and appreciation to all those who contributed to the present edition of the monograph. Specific acknowledgements have been recorded on the title page of each national description.

## INTRODUCTION

### A. Scope of the Monograph

The present monograph is concerned with the training of vocational teaching staff. Particular emphasis is placed on teachers giving theoretical courses in vocational schools to young people, including apprentices attending school part-time, who are training for work in industry. An attempt has been made in the monograph to provide a basis for comparison of the aims of and the methods used in training vocational teachers in the twelve countries covered, the social and professional status and the functions of such teachers, their level of recruitment and education, and the type of training provided for them.

However, inter-country comparison is complicated by differences in the concept of the vocational teacher's role and functions. In some countries or situations, the vocational teacher may be concerned only with theoretical technical instruction, or with general subjects; in others he may teach trade theory; in others again he may be responsible for giving instruction in trade practice, possibly in trade theory as well; he may be responsible for teaching all subjects to a class; he may also be a specialised subject teacher.

Comparison is also rendered difficult by the varying patterns and objectives of the vocational training systems involved. In some cases the training in the school may be complete in itself, in others it may be complementary to practical training and experience being obtained in employment. Alternatively, the primary purpose of the school courses may be educational, rather than occupation oriented.

In spite of this complex situation it is nevertheless possible to make a number of generalisations about the position and trends in the twelve countries covered by the monograph. They relate only to vocational teachers whose trainees intend to take up an industrial occupation.

## B. Systems of Recruitment and Initial Training of Vocational Teachers

In general, the systems adopted in the twelve countries for the recruitment and initial training of vocational teachers are of three main types.

(1) In one group of countries particular emphasis is placed on recruiting vocational teachers (for practical subjects and, often, theoretical technical subjects) whose occupational competence has been acquired through long experience in employment. The principal selection criterion is proven ability for work of at least skilled level in the occupation concerned, general educational background and formal educational qualifications being taken into account only to a lesser extent. Because of this selection criterion, vocational teachers are normally recruited at a comparatively advanced age. Teacher training in these countries is generally of relatively short duration and concentrates on the pedagogical and didactic aspects of the teacher's job. Quite a substantial proportion of vocational teachers (mainly of practical subjects) in these countries have not received any special teacher training.

(2) In a second group of countries, essentially ones in which vocational training is school-based, the training of vocational teachers (for practical subjects and, often, theoretical technical ones) is organised mainly as a continuation of vocational training. Young people who have completed vocational training courses and have the required intellectual ability are enabled, through courses of further education and technical training and a series of examinations, to qualify for employment as vocational teachers in schools and for courses of the same type as those in which they acquired their basic occupational qualifications.

(3) In the third group of countries relatively little distinction is made between arrangements for the recruitment and training of vocational teachers (for general and theoretical technical subjects) and those for the

recruitment and training of teachers for general education. Candidates for vocational teacher training are thus selected among persons who leave general education schools at the university entrance level. However, they are required also to have completed a prescribed period of practical work experience. Completed apprenticeship is recognised for this purpose. Student vocational teachers recruited on this basis are trained in special teacher training institutes or other university-level institutions. These institutions are the same as or are parallel to those which train teachers for general secondary education or which train higher technicians, graduate engineers or other professional staff. In the case of vocational student teachers, however, the period of formal training may be sandwiched with prescribed periods of relevant practical work experience.

The three main systems outlined above are also followed in countries other than the twelve studied. A fourth system, practised in some countries, does not appear to exist in the twelve countries. In this system, graduates of general secondary school are recruited for training as vocational teachers (for practical subjects). They are not required to have any technical background before acceptance but are given full trade training as part of their vocational teacher training course. In such cases the training course is lengthy, up to four years' duration. It may include a period of practical work experience.

It is evident that the approach adopted, whether in the twelve countries or in general, depends largely on the particular concept held of the functions of the vocational teacher. Moreover, few countries have really adopted a single approach to the recruitment and training of teaching staff for vocational schools. The increased use of subject teachers, the drive towards closer integration of practical and theoretical instruction, as well as the shortage of qualified teaching staff and of candidates for vocational teaching, have led to the introduction of several methods and levels of recruitment and training for vocational teaching staff.

## C. Main Trends of Development

In general the main trends indicated below were already evident when the first edition of the monograph was published in 1964. But they have been reinforced substantially during the intervening period.

### Vocational Training

(1) There is growing recognition that education and training cannot be considered separately but together make up a whole which will enable the young person to play his full part in society.

(2) There has been a move for some years to extend the period of compulsory schooling and this trend has been intensified recently. In consequence, the average vocational school trainee tends to be older than in the recent past. The prolongation of compulsory schooling has also made it possible in several cases to shorten the duration of vocational courses.

(3) Increased emphasis on a practical approach in general education and on the application of scientific principles has provided the young vocational trainee with a more technical background and a better social orientation than in the past. His education has often also given him more opportunity, by orientation years or classes, to try his hand at a variety of types of work relevant to his choice of occupation and training.

(4) There is general recognition that a far greater proportion of the working population, both present and future, requires vocational training than in the past. This is illustrated by the steady increase in the number of enrolments of young people in vocational training reported in almost all the twelve country descriptions.

(5) Within the vocational training system itself the picture is one of continuous change. The major factor in this evolution is technological development with its implications for occupational and employment requirements. In recent years almost all countries have realised the vital need to overhaul their training systems and to keep them under review if they are to remain in step with constant change in the nature of the jobs for which training is to be given. It has been widely recognised that traditional patterns of vocational training, even those organised on a systematic basis, are not adequate to meet the challenge of continuous change. There has accordingly been considerable experimentation and research into desirable patterns of training. Several of the countries covered by the monograph have made changes in the organisation of apprenticeship or in the combination of training in school and in the plant. In other countries some degree of reorganisation is already scheduled or under consideration.

(6) The majority of the structural changes made or envisaged stem from realisation that the traditional concept of vocational training is no longer adequate. In the past vocational training tended to be understood as something which was essentially for young people, usually school leavers, and which was expected to last them a lifetime. The acceleration of technological change has brought recognition that this concept could no longer be accepted as valid. Rapid changes in occupational requirements would bring with them a need for built-in further training throughout working life. This new concept was embodied in the Vocational Training Recommendation adopted by the General Conference of the International Labour Organisation in 1962. But translation of the concept into fact had not gone very far at that time. Each of the countries with which the monograph is concerned offered further training courses for members of the active population. But initial vocational

training had not been so organised as to provide the basis for a coherent and comprehensive system of continuous further training.

(7) In the last few years, however, there has been a marked speeding-up and intensification of action to reorganise initial training for young people. The aim is to provide a broad basis for subsequent and frequent adaptation to change. This is being done by such means as: training by stages and concentration of training effort on a smaller number of occupations which provide a basis for a large range of subsequent specialisations.

(8) It was observed in the introduction to the 1964 text of the monograph that "related instruction is being recognised as an integral part of vocational training rather than as a supplementary and optional educational activity". The recognition is now a fact. It is universally accepted that adaptability to change is dependent partly on theoretical knowledge of the processes and underlying scientific knowledge involved in the occupation. It is only in a very few countries that related instruction for apprentices is still optional instead of compulsory.

(9) There is a growing move also for related instruction to include some practical instruction as well as theory, in order to complement the training possibilities of the undertakings from which the trainees come.

## The Vocational Teacher

(10) The most common distinctions in the countries covered by the monograph as regards categories of vocational teacher are between teachers of general subjects, teachers of theoretical technical subjects (or technology) and teachers of trade practice, often including related trade theory. Sometimes the distinction is between teachers of general and technical subjects on the one hand (classified at the same level as teachers in general secondary education) and, on the other hand, teachers of practical

subjects (usually classified at a lower level). There is a trend towards raising the social and professional status of vocational teachers as a whole.

(11) The concept of the "subject teacher" is widely followed in the twelve countries. One or two of the countries indicate that, while they subscribe to the concept, they are not yet able to apply it in all courses.

(12) In spite of the improvement which seems to have come about in the status of the vocational teacher, there are shortages of such teachers and of suitable candidates for the profession in almost all the twelve countries. In at least one country widespread use of auxiliary teachers continues to be necessary. These shortages may be expected to increase, unless radical measures are taken.

(13) In countries where vocational teacher training is not yet compulsory a larger proportion of vocational teachers is now receiving systematic training than in the past. A variety of measures have been taken over the last few years in these countries as well as in those in which vocational teacher training is compulsory, to ensure that the training given is better geared towards training the teacher to do the job he actually has to cope with.

(14) In several countries the administration of vocational teacher training has been reorganised. This has sometimes involved the establishment of separate departments or services with special responsibility for vocational teacher training.

(15) The movement, already noted in the first edition of the monograph, towards the provision of specialised teacher training institutes for vocational teachers, particularly those concerned with practical or theoretical technical subjects, has continued. Both full-time and part-time schemes

of training are organised, some extending over a very long period (up to six years). There is clear evidence, however, of growing support for initial full-time courses and for the present duration of such courses to be extended.

(16) Action has been taken in several cases to extend the duration of initial training courses even when student teachers are already qualified in the general, theoretical, technical or practical subjects they are expected to teach.

(17) According to the information given in the country descriptions, major emphasis is placed in the syllabi of initial teacher training courses on the pedagogical and didactic aspects of the vocational teacher's job. Several of the descriptions state that the inclusion of technical training of any kind in initial courses is not necessary for student teachers of practical or theoretical technical subjects because they are already required to be technically qualified and to have practical work experience. In the case of teachers of general subjects, only a few countries report arrangements for familiarising them with the conditions in which their trainees will be employed or are already working.

## The Future

Do arrangements in the twelve countries for vocational teacher recruitment and training, as outlined above and in the national country descriptions which follow, match up fully to a world of continuing educational and occupational change? There is little sign that they do.

There continue to be widespread shortages of vocational teachers of all categories. These will obviously increase rather than decrease — there will be more people to train, and training will have to be given throughout working life, not only at its commencement. Moreover, the tasks which teachers will be expected to perform and the knowledge they will be expected to have will be changing constantly.

There are already considerable difficulties in obtaining candidates with the prescribed qualifications. And are the prescribed qualifications those which candidates should in fact have? Many teachers of theoretical technical subjects are not required to have had general education beyond completion of senior secondary school. Completion of junior secondary school is often the required educational qualification for teachers of practical subjects. These educational qualifications have remained virtually unchanged in the countries concerned for many years.

Are these qualifications really adequate even at the present time, let alone for the future? Is not a higher level of general education essential when vocational school trainees tend to have had general education at least to junior secondary school level? Teachers undoubtedly require a high educational level in order to grasp complex theoretical principles and information and to adjust to rapid changes in the subject matter of their instruction. It is increasingly common in many of the countries covered by the monograph, and in other parts of the world, for teachers of theoretical technical subjects to be required to be university graduates, and for teachers of practical subjects to have at least full general secondary education. Should not the educational qualifications prescribed in the more conservative countries in the sample covered by the monograph be raised to levels which are already common practice elsewhere?

Candidates for positions as teachers of practical subjects continue to be recruited mainly for the traditional trades. Is this procedure still valid today? Many of these trades are on the way out or have changed so greatly that a man trained for them 10 or 15 years ago is no longer competent to teach them. The common requirement that teachers of practical subjects and, often, theoretical technical subjects should be recruited from industry does not necessarily achieve its objective of ensuring that these teachers are fully up to date on the technical side. Many firms operate with machines, materials, procedures and processes which will rapidly be obsolete. However, it seems that very few of the countries covered provide for initial training for new recruits to vocational teaching to include systematic technical updating. Nor is there any evidence in some of the country descriptions that really systematic technical updating is provided as a matter of course once the period of initial training has been completed.

Moreover, what occupational competence should vocational teachers of practical subjects, at least, actually have? This is a world of specialisation. Is it really possible — or necessary — for these teachers to have complete knowledge and skill in a particular trade? This was possible in the past when occupational content changed very slowly and training given to new recruits to the labour force lasted throughout their working lives. Should not vocational teachers rather be required to have broad knowledge and skill in a particular occupational field complemented by thorough competence in a specialisation in this field? Surely this would be more appropriate when training is being increasingly organised in new patterns and being given by new methods — for instance, training by stages and modular methodology. And would not this type of qualification fit in better with the increasingly common use of team teaching?

All new recruits who do receive training are given instruction in pedagogical and didactic aspects. But many of them do not receive formal training at all. This is particularly the case for teachers of practical subjects — those who teach the skills required in the trade. But even in the best examples the pedagogical training given in initial teacher training courses seems to take little account of new developments in teaching methods and aids. Team teaching is becoming common following generalisation of the subject teacher practice; modules, programmed instruction, radio, television and many other new methods are increasingly being used. Should not student teachers be taught about these various methods in their initial pedagogical training courses? Even if they do not require them immediately after the course, surely they will need them very soon afterwards.

The limited provision reported for teachers of general and, often, theoretical technical subjects, to familiarise themselves with the conditions in which their trainees are already working or will be in the future, is also likely to create problems. Should not such teachers be given an opportunity really to know how an undertaking works, the way production is carried on, all the ramifications of working life, such as trade union organisation, the industrial hierarchy, the actual requirements of an operative's job? If they do not have such knowledge, how can they really adjust their instruction to their trainees and how can they coordinate it with the instruction given by the other teachers?

On the organisational side there is often a combination of long-term and short-term, full-time and part-time schemes of teacher training. Such arrangements have frequently been introduced as a means of overcoming chronic shortages. But do they? Are training programmes extending up to five or six years really likely to encourage recruitment into the teaching profession when better employment conditions are available in industry often after a shorter training period?

The impression gained is that existing arrangements for vocational teacher recruitment and training are geared to vocational training, not even as it is now evolving and already exists in many countries, but to vocational training as it was in the recent past. They appear still to be governed by what have become over-narrow and rigid concepts which have not been reconsidered in the light of the requirements of the future. How can arrangements for vocational teacher recruitment and training be made to fit into an integrated system of education and training, be adjusted to the concept of life-long education and training? Is the vocational teacher in the future to be a career man who devotes his life to teaching, once he has gained his basic qualifications? Is he to be employed on a part-time basis? Or is he to be a man who alternates between substantial periods of teaching and of practical work experience of various kinds? In each of these cases, is a whole framework of pedagogical and technical initial and updating courses and experience to be provided for him? How can this be arranged? How can he be qualified to teach the adults who will take vocational courses on a recurring basis throughout their working lives? And what should be done to qualify vocational teachers already in service to meet vocational teaching requirements which differ so much from those for which they were trained? Finally, how can opportunities for promotion be made available to vocational teachers as a whole?

Answers to these questions will vary in detail from country to country. And whatever system is adopted will have to be kept under constant review and assessment against present and foreseeable requirements. It is obvious that far greater and more systematic provision will need to be made for upgrading and updating. Obviously, too, a far more flexible approach will be essential.

## CONCLUSIONS OF THE TECHNICAL MEETING ON TRAINING OF TEACHING STAFF FOR INDUSTRIAL TRAINING SCHEMES (Torino, Italy, April 1969)

Many of the problems involved in the recruitment and training of vocational teachers were evoked at the above meeting which was organised by the ILO at the International Centre for Advanced Technical and Vocational Training. Eleven vocational training specialists from a total of ten countries took part in this meeting. They included representatives of employers' and workers' organisations. Representatives of UNESCO and the World Federation of Trade Unions also attended.

The participants decided, from the outset of their discussions, that teaching staff for industrial training schemes could not be disassociated from the wider framework of vocational training staff as a whole. Extracts from the conclusions adopted are given below. They indicate the types of approach considered desirable and possible answers to some of the main problems concerning vocational teachers.

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### Administration of National Training Schemes

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101. Special provision should be made for responsibility for the promotion and implementation of training schemes for teaching staff to be assigned to one or several institutions. The provision made should cover schemes for the training of personnel throughout the whole range of teaching staff and including: administrative personnel at the various levels of the training system; technical consultants; apprenticeship advisers; directors and managers of training institutions; training directors and officers of undertakings; teachers of general or technical subjects; instructors in practical skills employed in training institutions or in undertakings. It would also be desirable for responsibility to be

assigned for research and development work in the field of training, for the establishment of standards for the training of teaching staff and for the continuing updating of such standards in accordance with changing training needs in the country.

102. The recruitment and training of teaching staff for vocational training present many varied problems. Their solution is influenced by the general educational and training policies of the country concerned, by the social status and remuneration accorded to teaching staff in general, and to those in vocational training in particular, by the level of recruitment adopted for the various categories of teaching staff for vocational training, and by the facilities offered for their initial and further training.

103. It is not possible to establish criteria or guidelines for the recruitment of staff for the various types of training action which would be valid for all countries irrespective of the level of educational, economic and social development they have reached. It will be necessary for each country to determine appropriate levels of recruitment and desirable training programmes for teaching staff in the light of the specific conditions involved.

### Staff Requirements for National Training Schemes

104. In reviewing the staff situation for the implementation of national training schemes and planning action accordingly, care should be taken to identify the training needs of the various groups of the population and the availability of competent staff for work at the different levels of administration and implementation of training. The staff to be taken into account should include: staff for planning and policy-setting functions at the national level and if appropriate for particular sectors of economic activity, for programme development, for the training of staff, including teachers and instructors at national, regional and other levels; training consultants and advisers to give advice and assistance to institutions and undertakings carrying out training programmes; directors

and managers of training institutions; training directors and officers to plan and/or manage training schemes in individual undertakings or groups of undertakings; full-time and part-time teachers and instructors for pre-employment and in-service training schemes, including schemes of basic training in public or private institutions or in special workshops in large and medium-sized undertakings; research staff.

105. There is a particular shortage, among the above categories, of competent full-time staff directly responsible for instruction in practical work and/or related theory in training institutions and of competent staff to be directly responsible for instruction in undertakings on a full-time or a part-time basis. Special attention should therefore be given to the provision of adequate training for such teaching staff.

106. In determining the training needs of teaching staff in developing countries, particular account should be taken of the wide variety of the groups of the population with which they will be concerned. These groups range from people with a high level of education to such categories as the illiterate or semi-literate; people who work in small industry in a low productivity sector, in agriculture and in traditional crafts for whom special training arrangements need to be made.

107. The functions of those concerned with the training of personnel for smaller manufacturing and service units are often broader than those of other teaching personnel and may include, for instance, the provision of technical advice to undertakings which do not have specialised personnel for technical and organisational development work. It will therefore be necessary for the training organised for such teaching personnel to take account of the specific functions which they will be required to carry out.

108. Special account should also be taken, in the training of teaching staff, of the particular requirements of industries and other fields of economic activity characterised by rapid technological change and

reorganisation of job structures. In order that the training may be adapted to these requirements, it is necessary that close liaison be established and maintained between institutions training teaching staff and research establishments, undertakings and other institutions which are a source of innovation or in which the technological changes are taking place.

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## Teaching Staff Directly Responsible for Instruction

114. The standards set out in paragraphs 60 to 69 of ILO Vocational Training Recommendation, 1962, should be applied in the development of existing training systems with specific reference to teaching staff directly responsible for instruction in training institutions and in large and middle-sized undertakings which have training facilities of their own.

115. It will be necessary in some countries to develop training for teaching staff gradually as the present shortage of such staff and the insufficiency of such action in the past have created a gap between what may be desirable and what actually exists.

116. The needs for staff directly responsible for giving instruction are very large and the existing facilities for training such staff often cannot cater to the demand. In consequence some countries have been obliged to employ persons for giving instruction who have not completed their preparation for this purpose. In order to improve the standard of teaching, facilities should be provided for these people to acquire the necessary qualifications by courses of further study which may need to be spread over several years and to include further occupational experience. The courses should be organised to coincide with breaks in training activity so as not to disturb the instruction for which those taking part in the courses are responsible.

117. All courses of training for teaching staff directly responsible for giving instruction should lead to a certificate of qualification for the particular type of instruction involved. Such certificates should not be

awarded until completion of the initial training which may, as indicated in paragraph 116 above, need to be spread over several years.

118. All staff directly responsible for giving instruction should have an understanding of the realities of work in employment, the methods used in carrying it out, and the psychology of people at work. They also require to have a comprehensive understanding of the relationships between workers and employers in the employment market and of the role of vocational training as a factor in economic and social development.

119. All staff directly responsible for giving instruction should be selected with due regard to their personality and character, including their ability for good human relations and for concerning themselves with the general well-being of trainees for whom they are responsible.

120. It is essential to provide for teaching staff directly responsible for instruction to receive further training as required for the purpose of enabling them to improve their work, to keep up to date, to qualify for promotion.

121. It is particularly important that arrangements for the further training of teaching staff directly responsible for instruction should include provision for them to be kept up to date with developments relating to the theoretical aspects of their subject, with occupational practices in their field and with the development of teaching techniques (pedagogy and didactics). The measures taken for this purpose may require to vary according to the type of instruction for which the staff are responsible. In the case of teaching staff in training institutions the measures taken may thus include the release of such staff at regular intervals for periods of varying duration in order to enable them to acquire practical experience in undertakings. Another means of keeping them up to date may be to establish, in connection with the training institution, production workshops equipped and operated on similar lines to those of a modern undertaking and to arrange for teaching staff to carry out work in these

workshops at regular intervals. The measures taken in respect both of such staff and of staff responsible for instruction in undertakings may also include arrangements for them to study technical or pedagogical innovations in special courses; facilitation of study by correspondence; arrangements for participation in technical conferences, seminars and similar meetings.

122. It is desirable in many cases for instruction in practical subjects and related theory in a training institution to be given by the same person. This arrangement helps to ensure proper co-ordination between both types of instruction. The extent to which the arrangement is practicable and desirable, however, varies according to the nature of the occupation and particularly the extent and level of the theoretical knowledge it requires. It is easier, for instance, to arrange for practical subjects and related theory to be taught in a training institution by the same person when the extent of theoretical instruction is limited, as in the case of accelerated training for adults. In the case of institutional training for young people the theoretical content of instruction is likely to be greater and it may be difficult, if not impossible, to recruit a sufficient number of teaching staff with the qualifications required to teach both practical subjects and related theory of the necessary quality and extent.

Teachers of Related Instruction

123. It is not possible, in view of the variations in national practices for recruiting teachers of related instruction, to suggest a specific line of training for such teachers which might be universally applicable. Arrangements for training need to be flexible even within the same country when the qualifications set for the recruitment of staff vary according to the type of training involved.

124. Care should be taken in all cases to ensure, however, that teachers of related instruction possess the following qualifications:

(a) a level of general education and experience of life commensurate with the requirements of the subjects to be taught by them and with the particular type of trainee involved;

(b) broad technical education or scientific instruction corresponding to that of a technically qualified worker in the particular field;

(c) sufficient experience of work in undertakings to give them a sound knowledge of the conditions of work, including safety measures, which their trainees will encounter in employment, of ergonomics and of the organisation and performance of the various operations involved in the work;

(d) a knowledge of the philosophy and principles of education and of general and applied pedagogy, including principles and practices of planning training programmes, of general and industrial psychology, physiology and sociology, with particular emphasis on the problems of young people and adults at work and of the social patterns prevailing in employment;

(e) a sound knowledge of methods of teaching technical subjects, with special emphasis on teaching methods based on experimentation and involving the active participation of trainees; their training in such methods should take account of the need for them to develop an ability to teach complex scientific facts to trainees whose aptitudes and experience are often mainly of a visual and practical rather than an abstract and theoretical nature.

Teachers of Practical Subjects in Training Institutions or in Undertakings

125. Teachers of practical subjects require to have:

(a) full technical or trade training for the occupation in which they are giving instruction;

(b) several years' experience of work in the occupation;

(c) special preparation for teaching;

(d) to the extent possible, a level of general education higher than that of the persons to whom they will be giving instruction.

126. Their special preparation for teaching should include, when necessary, special training to raise their technical skill and knowledge to an acceptable level and their level of general education.

127. Their special preparation should also include orientation on the psychology of young people and adults in training, the general principles of pedagogy applied to the categories of trainee and type of training with which they are concerned and, when necessary, in the case of teaching staff giving instruction in training institutions, the provision of information on the organisation and methods of work in the types of undertaking in which their trainees are likely to find employment.

128. Where it is not possible to ensure that full-time and part-time teachers of practical subjects in undertakings receive the full range of training specified in paragraph 127, arrangements should be made to provide them with the minimum necessary knowledge of teaching techniques and of the principles and practices of planning instruction for productive work.

129. It is particularly important that teachers of practical subjects in basic training courses in training institutions should have comprehensive knowledge and a high level of skill in the technical field with which they are concerned. However, difficulties may be encountered in recruiting and retaining staff whose qualifications are sufficiently broad in the particular field. Where there is a shortage of such broadly skilled personnel, it may be possible, in some cases, to organise instruction in such a way that teachers with more specialised qualifications are made responsible for each subject or part of a subject. Where this is done it is necessary to ensure that the teachers work as a team on the basis of careful planning and specially prepared syllabi and that they are given special training to ensure that the objective of broad and comprehensive training is achieved.

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Vocational training in Austria normally is provided in apprenticeship accompanied by part-time related instruction at a vocational school. There are also junior and senior secondary vocational and technical schools which provide both theoretical and practical training on a full-time basis. Apprenticeship begins at age 15 after 9 years of compulsory schooling. Vocational teachers are classified according to the subject areas (trade theory, commerce, trade practice, etc.) and the type of school in which they teach. They must normally be over 21 years of age, have completed at least secondary general or technical education (teachers of trade practice must hold a mastercraftsman certificate or equivalent), and have undergone a 1-year course of full-time pedagogical and further occupational training. Numerous short courses of further training are organised annually.

1969

Prepared on the basis of material supplied by
Dr. Karl Koweindl, Federal Ministry of Education, Wien

## Background

Most skilled workers in Austria receive their training on the job in apprenticeship accompanied by related theoretical instruction provided in part-time courses at a vocational school. This training follows 9 years of compulsory education. Under the present educational system, which came into force with the 1963-1964 school year, young people who are in the 15 to 20 age group and are not enrolled in any other recognised type of full-time schooling are under obligation to attend part-time classes at a vocational school.

A substantial number of boys and girls attend vocational schools and vocational and technical secondary schools where they receive practical and theoretical instruction on a full-time basis. Some of these schools are terminal, others give access to higher education.

There are three main categories of school providing occupational training below university level.

1. Part-time vocational school (Berufsschule)

There are two types:

(1) trade and commercial schools: provide related instruction for apprentices and other young workers receiving their practical training in an undertaking; the duration of the courses corresponds to the duration of the relevant apprenticeship or other practical training period;

(2) domestic science schools: provide a 2-year course which combines instruction in domestic science and home management with continued general education for girls who have completed their compulsory schooling.

2. Full-time vocational schools (Berufsbildende mittlere Schule)

There are four types classified according to the field or economic sector for which the school provides training: trade, technical and arts and crafts; commercial and secretarial; domestic science, catering and assimilated occupations for girls; social work. All the courses are given on a full-time basis. They last from 12 months to 4 years and are terminal.

3. Technical and vocational secondary schools (höhere Lehranstalten; Handelsakademie, etc.)

There are four types, corresponding to each of the four types of full-time vocational school and providing instruction at a more advanced level. Successful completion of a course at a technical or vocational seondary school may give access to higher education.

The present text relates primarily to the training of teachers for the part-time vocational schools.

## Development of vocational teacher training

Before 1938, vocational education, including teacher training, came under provincial (Land) jurisdiction. In 1955 basic guidelines applicable to the whole country were established by the federal authorities. Between these dates a number of Orders were issued governing, in particular, the examinations for qualification as a teacher for the different types of school and categories of teacher. The school organisation Act (Schulorganisationsgesetz) of 1962 reorganised vocational teacher training on a federal basis establishing, among other things, two types of institution for initial and further training for vocational teachers:

(1) vocational teacher training colleges (berufspädagogische Lehranstalten), which are responsible for training technical teachers for the full-time vocational schools, vocational and technical secondary schools, and assimilated institutions; and

(2) vocational teacher training institutes (berufspädagogische Institut), which provide initial and further training for teachers at the part-time vocational schools, prepare candidates for the government

teaching examinations, and also do some pedagogical research.

Today there are vocational teacher training institutes at Graz, Innsbruck and Wien (Vienna).

Status and functions of vocational teachers

Vocational teachers in Austria are classified according to the subject(s) they teach and the type and level of vocational or technical school where they are employed as teachers. This implies a fairly high degree of differentiation among vocational teachers which is reflected in the recruitment criteria for the different categories of teacher.

Four categories of teacher are employed at the vocational schools providing part-time related instruction (Berufsschule):

(1) teachers of trade subjects (excluding trade practice, languages and typing);
(2) teachers of commercial and secretarial subjects, merchandising and sales techniques;
(3) teachers of trade practice;
(4) teachers of civics, business administration and related subjects.

At the vocational schools providing both theoretical instruction and practical training on a full-time basis (berufsbildende mittlere Schule) and the vocational and technical secondary schools and assimilated institutions there are the following categories of teacher:

- teachers of general education subjects (responsible for teaching civics, mother tongue, mathematics, accounting, social and working conditions in industry and the craft trades);
- specialised teachers (by category of school) —

A. at schools teaching trade or technical subjects, or arts and crafts:

  (1) teachers of technical subjects (technical drawing, trade arithmetic, technology); and
  (2) teachers of trade practice (workshop practice and related trade theory — tools, machinery, etc.);

B. at business schools and commercial academies:
  - teachers of commercial subjects;

C. at the special vocational and secondary schools for women, providing courses in domestic science, various of the catering occupations and sewing:
  - teachers of domestic science or vocational subjects.

Current legislation provides for separate salary scales for six groups of teachers, each scale having seventeen two-yearly increment steps. As from September 1969, the scale for teachers at (part-time) vocational schools runs from an initial 3,885 to 9,192 Austrian schillings per month.

In general, the salaries of vocational teachers tend to be about 30 per cent lower than the salaries paid in industry or commerce to persons of equivalent education, training and experience.

## Quantitative requirements

The number of young people either entering apprenticeship and requiring related theoretical instruction or following other technical or vocational courses varies from one generation to another. The system of engaging and training "extra" teachers under temporary contract permits a certain degree of flexibility as regards numerical strength of the teaching staff and to date has proved adequate for meeting fluctuating needs.

## Administration

The initial training and further training of vocational teachers come within the jurisdiction of the federal Ministry of Education. The vocational teacher training colleges and the vocational teacher training institutes are therefore federal institutions for which the federal government bears full responsibility and meets all costs.

To supervise the examinations for teachers for trade and commercial vocational schools, examining boards have been set up within the vocational teacher training institutes. Each examining board consists of:

- the senior provincial school-board inspector for vocational schools in whose jurisdiction the examining board is located (chairman);
- the director of the vocational teacher training institute concerned;
- the director of the course concerned; and
- teachers of the respective subjects at the vocational teacher training institute who examine only in the subject(s) they teach.

Students

1. To be admitted to a vocational teacher training institute to qualify for teaching at a part-time trade or commercial vocational school (Berufsschule) candidates must fulfil certain prescribed general conditions (minimum age, etc.) applicable to all teachers and must have had at least 12 months' teaching experience at a vocational school (minimum teaching load: 6 lessons per week).

In addition, special admission requirements apply to each of the four categories of teacher referred to above (p. 3).

(1) teachers of trade subjects: a technical secondary school leaving certificate, or a diploma of the Academy of Applied Arts (Akademie für angewandte Kunst), or a mastercraftsman certificate, or a completed apprenticeship plus at least 2 years of trade experience after having reached the age of 19 years;

(2) teachers of commercial and secretarial subjects, merchandising and sales techniques: secondary school leaving certificate and at least 2 years of practical experience in their speciality;

(3) teachers of trade practice: a mastercraftsman certificate or a completed apprenticeship plus at least 6 years of trade experience after having reached the age of 19 years;

(4) teachers of civics, business administration and related subjects: secondary school leaving certificate and at least 2 years of practical experience in their speciality.

2. To be admitted to training to qualify for teaching at the full-time vocational schools, vocational and technical secondary schools and assimilated schools and institutions, candidates must have the educational and professional qualifications summarised below, according to the subjects taught and the different types of school where they are to teach.

At all schools in this group, teachers of general education subjects must have at least a first-level university degree and prove their ability to teach by passing an official teacher's qualifying examination before a government examining board.

In addition the following requirements apply to the specific categories of teacher referred to above (A to C, p. 3 to 4).

A. Full-time trade, technical and arts and crafts vocational technical schools:

(1) teachers of technical subjects — a university degree in a branch of engineering (Diplom-Ingenieur); successful completion of appropriate courses in pedagogics at a vocational teacher training institute;

(2) teachers of trade practice:
  - at least 12 months' satisfactory performance as a teacher (minimum teaching load: 6 lessons per week) in their trade speciality, and

either (to qualify for teaching both trade theory and practice)

- technical secondary school leaving certificate (or a trade school certificate in the trade speciality in question), plus
- 2 years' relevant trade experience (or 24 weeks' trade experience combined with 4 years' relevant teaching experience),

or (to qualify for teaching practical work only)

- a certificate qualifying the holder to practise his trade speciality independently, plus
- at least 6 years' relevant trade experience (after reaching the age of 19 years).

B. Business schools and commercial academies:

- teachers of commercial subjects must have completed appropriate studies in economics and pedagogics at the University Institute of International Business Administration (Hochschule für Welthandel) and have passed the relevant diploma examination.

C. Special vocational and vocational secondary schools for domestic science, various of the catering occupations and sewing:

- two years' training at an appropriate specialised institution.

## Courses

### 1. Teachers for part-time trade and commercial vocational schools (Berufsschule)

The course organised at the vocational teacher training institutes lasts two terms ( one school year). It provides instruction in subjects constituting five major groups, which are compulsory:

(1) theory and principles of education; educational psychology and sociology; main features of the history of education and of jurisprudence; teaching exercises;

(2) general and professional (pedagogical) subjects: civics; political economy; business management; mother tongue and speech training; school and industrial hygiene;
(3) additional training in the trade or speciality to be taught;
(4) teaching methods and practice teaching;
(5) religious instruction.

There are two optional fields of study: art and foreign languages.

2. Teachers for full-time vocational schools, vocational and technical secondary schools and assimilated schools and institutions

A. Trade, technical and arts and crafts schools and colleges:
- Teachers for these schools must complete a course at the Vocational Teacher Training Institute at Wien. Duration of course: 2 terms (one school year).

B. Business schools and commercial academies:
- The course for teachers of commercial subjects at the University Institute of International Business Administration is given by the Institute's department of economics and pedagogics. It consists of two sections, each lasting 4 terms (2 school years) and terminated by an examination. During the second section the student must take practical training at a business school or commercial academy (eight lessons per week) covering all the subjects in which he wishes to qualify as a teacher.

C. Vocational and vocational secondary schools for domestic science, various of the catering occupations and sewing:

The course for teachers of domestic science or vocational subjects comprises instruction in the following fields:

(1) theory and principles of education; educational psychology and sociology; pedagogics; main features of the history of education, especially in vocational pedagogics; history of the Austrian school system and legislation;

(2) practical implications of pedagogical and didactical theory; teaching exercises;

(3) general subjects;

(4) supplementary training in the subject(s) to be taught;

(5) religious instruction.

The course lasts 4 terms (2 school years).

Examinations and certificates

Whatever the category of teacher and whatever the type of school where he (or she) is to teach, the vocational teacher must pass a government examination in order to obtain a teacher's certificate.

1. For teachers at a (part-time) vocational school this consists of an examination in:

- the theory of education;
- the theory and practice of the candidate's speciality (a different examination is set for each of the four categories of teacher recognised for these schools);
- teaching performance (the candidate is required to prove his ability to assume full responsibility for teaching his speciality at a vocational school).

2. Teachers at full-time vocational schools, vocational secondary schools and assimilated schools and institutions are subject to one or other of the following examination systems.

(1) For schools of type A and C, the government examination follows the same general pattern described under 1 above.

(2) The final diploma examination for type B (business schools and commercial academies), also taken before an examining board, covers the following subjects:
   - (a) general theory of education and psychology;
   - (b) theory of economics and pedagogics and political economy;
   - (c) business management;
   - (d) social and political economy and finance;
   - (e) the candidate's chosen field of specialisation.

   The candidate may also, on his own request, be examined in any optional subjects taken.

## Further training

Further training for vocational teachers who already hold their teacher's certificate is available through a wide range of lectures and special courses organised each year. Special courses for specific trade or subject groups are organised by the vocational teacher training institutes and held in various localities throughout the country. They normally have a duration of one week (28 hours).

## Financial assistance for students

Scholarships (ranging in value from 500 to 1,300 Austrian schillings per month) may be granted to student teachers at vocational teacher training colleges or institutes provided, among other things, that the student teacher maintains an adequate level during the course.

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Vocational training for industrial occupations in Belgium is given mainly in full-time vocational or technical schools. Apprenticeship is customary only in the craft trades, small industry and commerce. Training for industry begins at the age of 12-13; compulsory education continues up to 14. Vocational teacher training is organised either full-time in technical teacher training colleges or in part-time courses, the latter being predominant. It is mainly pedagogical in character since the student teachers are already fully qualified in their trade or speciality. Further training is provided in short (holiday) courses, study groups, etc. by the same colleges and by certain private associations or institutes.

Prepared on the basis of information supplied by the Ministry of Education

1969

Background

In Belgium most skilled and semi-skilled workers acquire their qualifications by attending full-time technical or vocational schools. Training on the job in apprenticeship is undertaken chiefly in the craft trades, in commercial occupations and in small-scale industry.

Vocational or technical education begins at the age of 12-13. After 6 years of primary education school children may:

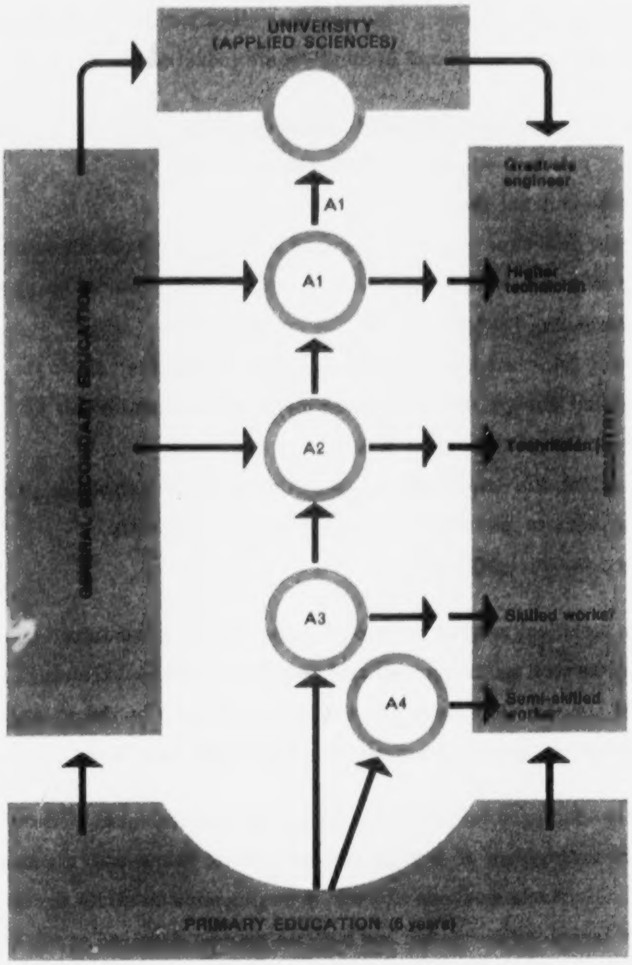
- enter general secondary school;
- enter full-time vocational or trade school (A4) providing training up to a semi-skilled (ouvrier specialisé) level (minimum age for admission: 13 years);
- enter full-time technical school leading progressively to the skilled worker, technician and higher technician levels (respectively A3, A2 and A1);
- continue full-time primary education up to the age of 14, preparatory to entering employment or apprenticeship.

(cf. diagram overleaf)

Both the technical and the vocational schools provide continued general education as well as theoretical and practical vocational training. The technical schools, however, place greater emphasis on theory and technology whereas the vocational schools stress practical work.

There are also parallel part-time vocational and technical courses which are given in the form of evening and spare-time (week-end) classes and which enable young workers already in employment to attain the same levels of technical knowledge and skill as may be acquired at full-time vocational or technical schools. These courses are open to apprentices and other young workers who have completed their compulsory schooling.

## Organisation of vocational and technical education


UNIVERSITY
(APPLIED SCIENCES)
GENERAL SECONDARY EDUCATION
A1
A1
A2
A3
A4
Graduate engineer
Higher technician
Technician
Skilled worker
Semi-skilled worker
PRIMARY EDUCATION (6 years)

Source: Les jeunes dont l'industrie a besoin. Bruxelles, Fabrimetal, May 1963, p. 15

The vocational schools run part-time courses providing related theoretical instruction for apprentices, as well as opportunities for specialisation and further training for apprentices and workers not under apprenticeship contract.

Development of vocational teacher training

Some 40 years ago technical and vocational schools in Belgium recruited their teachers direct from industry or among self-employed professional and other workers. At that time they only required applicants to pass an examination proving their general suitability for teaching and their competence in the subject to be taught.

A need for better trained teachers, however, made many schools introduce special part-time courses for vocational and technical school teachers. These courses were organised on a voluntary basis. Consequently both duration and content varied considerably. In general most of them included:

(a) general education subjects: mother tongue, elementary pedagogics and methodology, general and applied psychology — in particular youth psychology, social and industrial psychology;

(b) pedagogics applied to vocational and technical education: principles and methods of instruction;

(c) practical training in teaching techniques: study and use of textbooks, observation of and participation in theoretical instruction and practical training, use of teaching aids, etc.

A number of the courses led to the award of a teaching certificate.

Until comparatively recently the Ministry of Education did not consider it necessary to standardise these teacher-training courses. It was considered preferable for the different institutions organising the courses to retain a large degree of autonomy in so far as their curricula and methods of instruction were concerned. The Ministry exercised some control, however, by stipulating that State-aided schools and courses provide for at least a minimum number of hours' instruction if their teacher training programmes were to receive official recognition.

In 1963, however, the Ministry issued a set of standards to be observed by all institutions training students for a teaching certificate for trade practice and technology or trade theory.

Vocational and technical teacher training today is given either in full-time, public or privately run, technical teacher training colleges (écoles normales techniques) or in part-time courses (cours normaux techniques). It comprises two cycles. The first (primaire) has not been very extensively developed; the second cycle (moyen) provides training for most of the teachers for trade theory and technology classes in elementary vocational and technical education (junior secondary level) and for all teachers of trade practice.

There are a number of full-time technical teacher-training colleges for persons who will be teaching girls but colleges for those who will be teaching boys are few in number and still virtually in an experimental stage.

Status and functions of vocational teachers

The State recognises five categories of teacher for technical and vocational schools:

- the teacher of general subjects;
- the teacher of special subjects;
- the teacher of technical subjects;
- the trade practice instructor;
- the teacher of technical subjects and trade practice.

Although the teachers of general education subjects at these schools give lessons in mathematics and the basic sciences, this text is concerned principally with the teacher of technology and trade theory and, though to a less extent, with the trade practice instructor.

The full-time vocational or technical teacher in a State school starts on a temporary basis by appointment by the Minister of Education. Later, permanent status is confirmed by royal appointment. The State-employed vocational or technical teacher is not considered a member of the civil service, but is subject to special rules and regulations governing the staffing of vocational and technical schools (Royal Decree of 22 March 1969). However, these regulations take account of those which apply to the civil service.

The personal and technical qualifications needed for permanent employment as a full-time vocational or technical teacher have been laid down by successive Royal decrees. The most recent of these are the Royal Decree of 22 March 1969, defining the status of administrative and teaching staff, and that of 22 April 1969 laying down the qualifications required by such staff (including minimum educational standards and recognised practical experience).

Before the new decrees were adopted, vocational/technical teachers were generally required to hold at least a certificate from one of the technical teacher training programmes before being allowed to teach in a vocational or technical school or course. The broad principle underlying the new regulations is that a pedagogical diploma is required for teaching in all courses and at all levels. In the absence of a pedagogical diploma a non-pedagogical one is accepted, providing the holder has the pedagogical certificate introduced by the decree of 22 April.

The necessary recognised practical experience may be acquired either in teaching or by work in a trade, provided the latter is directly related to the subject(s) to be taught or will help improve the candidate's teaching competence.

Special account is taken of the candidate's ability to teach in the language of the area in which the appointment is to be made.

Provided they possess the qualifications required for employment in a State vocational or technical school or course, teachers employed by provincial, local or private vocational or technical schools which are State subsidised receive the same salary as State-employed teachers.

## Quantitative requirements

There are more than 50,000 teachers employed in full-time vocational and technical schools and part-time courses. Numbers are constantly rising to keep pace with the corresponding increase in the number of young people attending school. Between 1955-1956 and 1960-1961, for example, the number of pupils receiving vocational or technical training in schools at junior secondary level rose from 108,992 to 177,298, i.e. by 62.7 per cent. Between 1960-1961 and 1965-1966 the number of pupils in technical and vocational streams (including those in general middle schools) increased to 244,488 — an increase of 38 per cent.

## Administration

All State vocational and technical education, including the colleges and courses for training vocational and technical teachers, is the responsibility of the Ministry of Education. Establishments training teachers for giving lessons in trade theory and trade practice are considered to come within the general framework of the vocational and technical education system.

Students

With some exceptions, the students attending technical teacher training colleges or courses are fully qualified in their trade or specialisation and have already acquired a number of years of practical experience on the job, e.g. in industry. They may also, in some cases, have been teaching in a temporary or supernumerary capacity.

A higher technical secondary school certificate in the trade or specialisation to be taught is required for admission to the technical teacher training colleges.

Admission requirements for the technical teacher training courses are:

- for trade practice and technology: at least a higher technical secondary school certificate, or a lower technical secondary school certificate plus 3 years' recognised practical experience;
- for technical subjects: a higher technical secondary school certificate;
- for commerce: a first level university degree in commerce.

Aims and methods

Both the part-time and the full-time training concentrate on the pedagogical and related aspects of the vocational teacher's job.

Trainees are given practical pedagogical training through:

- observing model lessons given by experienced teachers;
- practice teaching (principally during the second year of their training): lessons are given regularly by each student to a real class and followed by a discussion session;
- group activities: the student teachers are sometimes asked to take charge of a group of pupils in the workshop.

Particular attention is paid to training student teachers in how to use textbooks, how to use a reference library and how to prepare lessons and teaching materials. They are also initiated into the use of audio-visual aids, for which a special course, one hour per week for 6 months, may be organised when needed.

Student teachers are usually expected to take their own notes during class.

Courses

(1) Initial training for student teachers and for teachers recently engaged on a temporary basis

(a) Technical teacher training colleges for men

Training is given on a full-time basis. Each college sets its own curriculum.

More than 50 per cent of the time is spent on pedagogical training: psychology, pedagogics, general and special methodology, psychomotor training, teaching practice.

The rest of the time is divided between general education subjects and further training in the student teacher's technical speciality. The latter is considered as refresher training only, not basic skill training.

Duration of training: 2 years (36 hours per week for 36 weeks each year).

(b) Technical teacher training colleges for women

These colleges comprise sections for the following trades and subjects: dress designing, cutting and dress-making, lingerie-making, millinery, artificial flower making, commerce, fashion drawing, decorative arts, lace-making, domestic science and rural domestic science. The courses are given full-time and provide both theoretical and practical training.

Duration of training: 2 years (for teachers of dress designing: 3 years).

(c) Technical teacher training courses

The conditions governing the organisation of, admission to and examinations terminating the part-time technical teacher training courses (2nd cycle) were established by Ministerial Circular of 30 June 1963.

The minimum curriculum comprises: languages, diction, psychology, pedagogics, general and special methodology, teaching practice, hygiene and safety, trade ethics and legislation, school legislation, the technical education system.

Duration of training: 2 years (approximately 450 hours).

With slight variations in orientation and methodology, these courses are also used for giving pedagogical training to teachers of trade practice.

(2) Further training

Some of the technical teacher training colleges organise holiday courses and practice periods for teachers already in employment. Technical schools as a rule encourage teachers to learn, or perfect their knowledge of new industrial manufacturing techniques. The Federation of the Clothing and Fashion Industry for instance, organise part-time courses to this end at regular intervals for teachers of cutting and dressmaking.

A number of bodies, such as the Belgian Office for Higher Productivity (Office Belge pour l'accroissement de la Productivité — OBAP), organise study groups or study days on work methods and organisation.

Many undertakings accept vocational teachers for practice periods or observation visits.

Study days or seminars are also organised by various bodies for groups of teachers interested in specific educational problems or questions.

Certificates

Certificates are awarded to student teachers who complete the technical teacher training courses (there is a separate certificate for each training cycle). Certificates and diplomas are awarded by the technical teacher training colleges.

These certificates are not, by themselves, sufficient qualification for a permanent full-time teaching appointment. The holder must also possess certain basic educational qualifications and recognised practical experience.

Financial assistance for students

The National Education Fund (Fonds national des Etudes) may award scholarships to gifted young men and women of limited financial means.

Student teachers attending a full-time technical teacher training college may obtain a scholarship amounting to approximately 11,500 B. fr. ($215).

Staffing

The staff for the technical teacher training colleges and courses are normally drawn from the staff of the general education teacher training colleges. Efforts are made also to recruit teachers with thorough pedagogical experience and full competence in their trade speciality.

Teaching aids

Virtually no courses have been prepared specially for or been adapted to technical teacher training. It is therefore the practice for student teachers to take notes during lessons. In addition the staff responsible for teacher training frequently prepare their own notes and distribute them in mimeographed form to their students.

Reference works on psychology and pedagogics are usually available to student teachers.

Evaluation

Discussion sessions and seminars, organised principally during the second year of training, deal with general problems and questions connected with teaching. They give the student teachers an opportunity to state their views concerning the nature, content and value of the courses.

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In Denmark vocational training normally combines training on the job in apprenticeship with related instruction given at a vocational school. Apprenticeship lasts 3 to 4 years and follows on a 7-year minimum period of compulsory education. Vocational teachers are recruited from among highly skilled workers, technicians and engineers. The training they receive aims at providing advanced knowledge of pedagogics, proficiency in teaching methods and some technical updating. Basic teacher training is given in full-time residential courses: it is pedagogical only and includes a 4-week period of practice teaching. Short pedagogical and technical updating courses are organised each year and are compulsory for full-time vocational teachers.

Prepared on the basis of information supplied by the Ministry of Education

1969

## Background

In Denmark most skilled workers receive their training under the provisions of the 1956 law on apprenticeship, i.e. by training in employment accompanied by day-time related instruction under block release or day release. Day-time related instruction was introduced under the 1956 law. The period of apprenticeship (normally 3 or 4 years), the curricula and standards of practical training, related instruction and examinations are determined by national bipartite (employers and workers) trade committees, whose decisions are submitted to the National Board for Technical Education (Skolerådet) and the Ministry of Education or to the National Apprentice Board (Laerlingerådet) for final approval.

This apprenticeship period follows on a 7-year period of compulsory education. The minimum school-leaving age is 14. Many local communities have taken advantage of the authority given under special provisions of the 1958 Education Act to provide an 8th, 9th and 10th year of study. It is becoming customary for children to continue their education beyond the 7th year, and some trades have introduced a shortened apprenticeship term for apprentices who are 16-17 years old on entry. As a result there has been a gradual rise in the average age of the apprentices and other trainees receiving related instruction, including trade theory in schools. It is expected that in a few years compulsory education will be extended to 9 years.

Related instruction is given in the technical schools (teknisk skole) or in one of the technological institutes (teknologisk institut). Some of the technical schools are multi-purpose institutions providing, in addition to related instruction for apprentices, full-time courses for technicians. The technological institutes provide research, consultant and training services for smaller undertakings and independent master-craftsmen.

They also undertake a number of related activities, including the development of courses for apprentices and technicians.

## Development of vocational teacher training

The first courses for teachers at technical schools were arranged in 1890, shortly after the adoption of the first apprentice act. In 1916 the National Board for Technical Education was established by law, and it was decided that the chairman of the Board (the director of technical education) should be responsible for teacher training courses. A special section — the Institute for Technical Teacher Training (Statens tekniske laererkursus) — was set up for the purpose within the Directorate of Technical Education. This section has now been replaced by a new institution, the State Institute for the Pedagogical Training of Vocational Teachers (Statens erhvervspaedagogiske laereruddannelse). The Institute assumed responsibility from 1 April 1969 for the training of teachers for vocational and technical schools, commercial schools and engineering colleges.

## Quantitative requirements

The introduction, under the 1956 Apprenticeship Act, of day-time related instruction resulted in a rapid increase in the demand for vocational teachers. Parallel to this increase came the consolidation of the existing network of technical schools. In 1956 only 50 teachers were employed full-time in 350 schools. In 1968 there were about 1,700 teachers in 60 schools.

The total number of apprentices in 1967-1968 was 55,000 and the corresponding number of technician students 6,300. The total number of student hours in that year was 27 million. Practical training and related instruction are provided for apprentices in about 125 trades and the approximate number of technician courses is 20.

## Administration

Under an administrative reorganisation undertaken in October 1961, vocational and technical training, including control over both practical training and related instruction for apprentices, was brought under the general supervision of the Minister of Education. In carrying out these functions the Minister is advised by the National Board for Technical Education, by the National Apprentice Board and, indirectly, by the national bipartite trade committees referred to above.

In 1965 the administration of vocational, technical and commercial education was reorganised. The Directorate of Vocational and Technical Education was established replacing three separate institutions for commercial, technical and marine engineering training respectively. Until 1 April 1969, implementation of the courses was the responsibility of the Institute for Technical Teacher Training. From that date the training of teachers for vocational and technical schools, commercial schools and engineering colleges has been the responsibility of the State Institute for the Pedagogical Training of Vocational Teachers.

## How the present system was prepared

Before the final outline of the present teacher training scheme was accepted, studies were made of past and present teacher training systems in Denmark, Norway and Sweden. Experience acquired by the Danish Productivity Council was also studied. The Council had developed several training programmes for consultants for industry and the distributive trades, for management development and for industrial supervisors and labour union leaders. In addition, a training programme specialist from the European Productivity Agency was consulted and advice was sought from the Danish Pedagogical Research Institute.

An advisory group was set up, comprising representatives of government, management, labour, technical schools and the technological institutes. This advisory group acted in 1959-1962 as the board of the Institute for Technical Teacher Training with the Director of Technical Education as its chairman.

## Students

The vast majority of the participants in vocational teacher training courses are selected from among engineers, technicians and highly skilled workers who already have several years' experience in industrial and other occupations.

## Aims and methods

The new State Institute for Pedagogical Training of Vocational Teachers aims at training teachers for technical and commercial schools, at furthering research and at trying out new educational aids and methods. Studies at the Institute will lead to the State recognised examinations required for obtaining permanent teaching posts in technical and commercial schools.

The main purpose of the courses is to give persons already possessing full technical qualifications advanced training in pedagogics and teaching methods and, to a certain degree, up-to-date knowledge of new industrial techniques and operations. For this reason the methods used are predominantly discussion, training observation of teachers at work, and practice teaching (either in mock teaching sessions or in a real class) under the supervision of experienced teachers.

The following examples illustrate general policy with regard to methods applied in the courses:

1. Participants take notes of each day's meetings and discussions. These notes are reproduced overnight and serve next morning as a review of the previous day's work. Considerable emphasis is laid on this note-taking, which offers an immediate evaluation of the information presented by the course instructors. A technique of note-taking has been specially developed and is taught at an introductory course.

2. Audio-visual aids — flannelboard, flip-over charts, overhead projectors etc. — are used by the course instructors, and the students are trained to produce such teaching aids themselves. The use of colour-slides, film-strips and films also forms part of the training.

3. Students are specially trained in group-work techniques and other active teaching methods.

Full-time courses are residential. They are held in a non-urban boarding-school so that the students may benefit from concentrated study and informal discussion with colleagues and tutors. Classes consist of a maximum of 10-12 students; a head tutor is in charge of each course and is available for advice and guidance throughout the training period.

Courses

(a) Initial training

Several basic pedagogical training courses are run each year for newly appointed full-time vocational teachers. Three such courses were held in 1961-1962; 8 took place in 1962-1963 and in the following years the average has been 9. Each course lasts 14 weeks full-time and is divided into three parts:

Part 1 — theoretical training in a residential course (4 weeks);
Part 2 — in-service training as assistant teachers at a technical school (4 weeks);
Part 3 — final residential course (6 weeks).

An examination is held at the end of the course and diplomas are awarded to successful participants. The syllabus of the course is given in Annex I.

(b) Further training

It is the policy of the Ministry that every teacher employed full-time should undergo two 1-week refresher training courses each year: one week of further pedagogical training and a 1-week technical updating course.

The following courses were given during sample years between 1960-1969:

| | 1960-61 | | 1964-65 | | 1968-69 | |
|---|---|---|---|---|---|---|
| | Courses | Participants | Courses | Participants | Courses | Participants |
| Pedagogical week | 12 | 220 | 73 | 1,100 | 108 | 1,500 |
| Technical updating | 19 | 330 | 34 | 710 | 65 | 1,280 |

Model syllabi of two different further training courses, each of one week are given in Annex II.

Financial assistance for students

Participants in the basic pedagogical course are often employed by vocational and technical schools and therefore receive full salary during the period of training. In addition they are reimbursed their travel expenses and receive a subsistence allowance.

Staffing

The head of the State Institute for Pedagogical Training of Vocational Teachers is responsible for the institute's educational activities. The staff also comprises an administrator, 3 pedagogical heads of division, 2 graduate teachers in permanent posts and a number of other teachers with full-time or part-time teaching duties most of whom are university graduates, engineers, highly qualified and experienced technicians or business specialists.

## Textbooks

Textbooks on pedagogics and psychology are used in the basic pedagogical course and recommended reading lists are provided. A small collection of reference books on pedagogical subjects is available during the course. Textbooks used for teaching individual trades are prescribed for students according to their particular speciality during the 4-week teaching practice period.

In some technical updating courses exercises in the preparation of textbooks and teaching manuals form part of the course itself, and participants are given an opportunity to discuss the content of the textbooks and manuals and exchange ideas on their scope, lay-out, etc. with textbook writers.

## Evaluation

An evaluation session held at the end of each course enables the participants to discuss and evaluate the results of the course in small groups. The 14-week course provides for two evaluation sessions (at the end of parts 1 and 3).

A survey has been made of the results obtained at vocational and technical schools by teachers who have passed the examination concluding the 14-week course. The opinions of the school directors concerned were generally favourable.

## Future plans

The whole technical teacher training programme has given rise to much discussion during the past few years.

In 1967 a commission proposed a 36-week basic pedagogical training course for teachers in vocational and technical schools and detailed plans for an experimental 28-week course on these lines are at present being prepared. A study group is currently working on plans for courses for teachers in the engineering colleges.

## STATE INSTITUTE FOR PEDAGOGICAL TRAINING OF VOCATIONAL TEACHERS: Syllabus of basic pedagogical course (14 weeks)

### 1. Teaching methods

General (43 hours)
Leadership in industry and at school. Main functions of the teacher — his personality and behaviour. Lecturing, class work, discussion leading, group work, techniques of questioning. Praise and blame, discipline, motivation. How to create or stimulate class participation, group activity and individual action.

Elements of the history of education; educational research.

A full day is reserved for discussion of the teacher's influence on the extra-curricular cultural activities of trainees; this includes a panel discussion with participants representing management, labour and education authorities.

Job instruction techniques (15 hours)
Group training using the Training Within Industry (TWI) Job Instruction programme as a basis. (Most technical schools include training in manual skills in their curricula.)

Preparing class lessons (30 hours)
Techniques of preparing lessons with or without the use of textbooks, based on a standard preparation form.

Audio-visual aids (30 hours)
Pedagogical and psychological principles in the use of audio-visual aids; the use of the blackboard, slides, film strips, films, flip-charts, flannel-boards, models, overhead and other projectors, closed circuit television,

etc. — theory and practice. Information on film libraries and other sources of audio-visual aids.

Discussion leading (22 hours)
Training in discussion-leading techniques based on the relevant TWI programme but adapted to the teaching situation.

Group work (7 hours)
Field of application and techniques of organising and guiding group work within a class.

Role playing and case studies (4 hours)
Field of application; techniques — using orally presented cases and written cases.

The teacher's use of his voice (18 hours)
The functions of the throat, the tongue and the mouth in speaking; preparing a lecture, speech or lesson; personal behaviour of the teacher in a class and before a large audience.

Methods improvement (10 hours)
Group training in the fundamentals of analysis and improvement principles — based on the TWI Job Methods programme, but with special reference to the improvement of teaching methods.

## 2. General and applied psychology

General (43 hours)
Psychology as a science — scope and methods. The ego; the stimulus/response situation, "the mind", the emotions; the thought processes. Learning and retention. Individual and group psychology, with particular reference to adolescents. Mental health.

Reading techniques and problems (7 hours)

Reading techniques — diagnosis and cure of reading difficulties. Motivation in reading. Assistance available to teachers dealing with trainees having reading difficulties.

Evaluating trainee performance (10 hours)

Marks and appraisals; marking scales; validity and reliability; theory and practice of grading; standard criteria.

3. Techniques of recording and studying

How to take notes (30 hours)

Purpose and methods of note-taking during lessons; practical training in the methods.

Study techniques (4 hours)

How to study a text for the purpose of learning; the extraction of information, its storage, retrieval and use in the teacher's work.

4. Studies of special trade teaching

Study of textbooks; preparing a syllabus (100 hours)

During the second part of the course the participant should make a systematic study of all textbooks used, evaluate them, solve some of the standard problems given to apprentices, and arrange the subjects into a full course syllabus.

5. Teaching practice

Mock lessons (35 hours)

Students give short lessons on subjects related to their trade, using a variety of methods and audio-visual aids. The critique which follows is based on tape recordings or closed circuit television.

Class-work practice (114 hours)

During the second part of the course, participants are placed in technical schools. They observe teachers at work and prepare and give a number of lessons first under the direct guidance of a fully qualified teacher who acts as their tutor and then, towards the end of this period, on their own. The Institute prepares a written guide for the tutor, for each student attached to him, drawing attention to the areas in which the student is particularly in need of further experience. The students are given initial training in how to observe class work done by others and are taught to pay special attention to the individual reactions and performance of pupils and to group behaviour.

## 6. Miscellaneous

Revision (30 hours)

Final group revision of all subjects — based on participants' own notes.

Other activities (50 hours)

Preparatory tests, discussions, final evaluation of the course, etc.

Total duration: approximately 600 hours.

## STATE INSTITUTE FOR PEDAGOGICAL TRAINING OF VOCATIONAL TEACHERS: Examples of further training courses

### 1. Technical updating course for vocational teachers (machinist)

Training standards; apprentice examination specifications (2 hours)
Danish and civics (1 hour)
New workshop techniques (1 1/2 hours)
New elements in teaching mathematics and applied physics (1 hour)
Applied economics and works accounting (4 1/2 hours)
New materials (1 1/2 hours)
Mock lessons (2 hours)
Shop visits (4 1/2 hours)
Review and evaluation (12 hours)

### 2. Pedagogical course

Psychology and education (2 hours)
Job description techniques (4 1/2 hours)
Note taking (2 hours)
Visual aids (3 1/2 hours)
Discussion leading (3 1/2 hours)
Lesson preparation (3 1/2 hours)
Grading and marking (1 hour)
Group work (1 hour)
Teacher's personality, behaviour and performance (1 hour)
Review and evaluation (12 hours)

From 30 to 40 different types of 1-week courses are run every year — in many cases the same course several times. The two examples given above have been chosen at random from among them.

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In France, skilled workers, both manual and non-manual, may be trained either by full-time courses in a state vocational school (in future to be known as a "second cycle college") or a private training centre, or by means of apprenticeship on the job supplemented by compulsory related instruction. This training generally starts at the age of 15 or 16, after 9 years of schooling, and lasts 2 or 3 years. Vocational teachers for state vocational schools are given a training in teaching methods either in, or in collaboration with, a national vocational teacher training college (ENNEP). Further training is given in practice periods, study sessions, seminars and observation visits to undertakings.

Prepared on the basis of information supplied by Mr. J. Majault, Assistant-Director of the National Pedagogical Institute, Paris, and Mr. O. Wormser Migot, Head of the Documentary Studies Division

Background

The vocational training of manual and non-manual workers for industry, the artisan trades, commerce and the service occupations usually begins at the age of 15 or 16 after 5 years of primary schooling and 4 years of post-primary. In principle, vocational training takes place after compulsory schooling, which now continues until the age of 16, but it may also form part of compulsory schooling for pupils who have completed 4 years of studies after their primary schooling and have not yet reached the age of 16.

The training is given either full-time in a state vocational school (collège d'enseignment technique — CET — formerly known as an "apprentice training centre" and in the future to be known as a "second cycle college" (collège de second cycle)), in a plant individual or group training centre, in a private school, or through on-the-job apprenticeship. In principle this apprentice training is governed by a formal contract and supplemented by courses of compulsory related theoretical instruction. (As a temporary measure, apprenticeship contracts may exceptionally be concluded from the age of 14.)

After two years full-time study in a state vocational school (CET) or a similar establishment, the trainee takes an examination to obtain an industrial, administrative or commercial vocational certificate (brevet d'études professionnelles — BEP). These certificates are awarded at the end of a course of multi-purpose training for a group of related occupations and were recently instituted to make it easier for a trainee to embark upon his career and to facilitate occupational mobility later on. When an apprentice has completed his apprenticeship he must sit either the trade certificate examination (certificat d'aptitude professionnelle — CAP) or the final artisan trades apprenticeship examination (examen de fin d'apprentissage artisanal — EFAA). In the past the CAP (which covers a more specialised training than the BEP) was also awarded to successful trainees in all the training courses given in CETs and similar establishments. Some CET sections still offer a 3-year CAP course and, according to recent information, the Ministry of Education is not considering the abolition of the 3-year CAP courses given in the CETs.

Young persons under the age of 17 employed in commerce and industry, whether under an apprenticeship contract or not, must, in principle, attend part-time vocational courses and further general education courses for a minimum of 150 and a maximum of 200 hours a year (4 to 8 hours a week). In 1969 these courses were attended by some 360,000 young persons between the ages of 14 and 18. They are organised by a number of different public and private bodies such as municipalities, chambers of industry and commerce, chambers of artisan trades, trade associations, employers' associations, large undertakings, various professional bodies and private educational institutions. For the most part, these courses of further education and vocational training concern the artisan trade apprentice. They are frequently given by local primary school teachers who are greatly helped in this work by detailed teaching instructions and documentation (correspondence courses) which are issued by the chambers of artisan trades.

Holders of BEP or CAP certificates who have had some years of practical experience and taken part-time courses of further training, may sit for the higher vocational certificate at the skilled worker level (brevet professionnel — BP) which paves the way for promotion, for instance, to foreman. In the artisan trades the EFAA may be followed by a mastercraftsman examination which consists of 2 parts: the first comprises tests of vocational skills and knowledge, the second is concerned chiefly with testing the candidate's ability to teach his trade.

The following types of training are mentioned here pro memoria although they do not really fall within the scope of this study: the training (or pre-vocational) courses given in adult vocational training centres (centres de formation professionnelle des adultes — FPA), which, even though they are for adults nevertheless affect large numbers of young workers in the 17 to 20 age group; the new one-year courses of basic training at a lower level of skill (which may be given either entirely in a CET or similar establishment, or partly in such an establishment and partly in an undertaking) which lead to a certificate of vocational education (certificat d'éducation professionnelle) awarded, not on passing an examination, but on the basis of the results achieved during the course; and the essentially prevocational training (although at least 2/3 of it takes place within an undertaking) provided by the vocational education sections which have been created over the past few years and which offer a means of concluding the new period of compulsory schooling. Similarly, agricultural vocational training and the training of teaching staff for it are not included in the study.

Development of vocational teacher training

The first state apprentice training centres were set up in 1939 and on 2 November 1945 a decree was issued establishing national vocational teacher training colleges (Ecole normale nationale d'apprentissage — ENNA) to train the required staff. (These colleges have now been renamed "Ecole normale nationale d'enseignement professionnel — ENNEP.) The colleges train general education teachers and teachers of technical and vocational subjects for the state vocational schools (CET). There are at present six vocational teacher training colleges (ENNEP).

Professional and social status and functions of vocational teachers

Current legislation provides for the following categories of CET teaching staff:

- general education teachers — for languages, history and the sciences (professeur d'enseignement général — PEG);
- technical teachers (theory) — technical drawing, commerce, social work, home economics (professeur d'enseignement technique théorique — PETT);
- technical teachers:
  - in charge of technical work (chef de travaux — CT): is responsible for running the workshops and supervising the technical teachers mentioned below (the CTs are recruited, by competition, from among the PETTs, and other technical teachers (see below) employed at CETs, as well as from outside applicants of at least 28 years of age who have 5 years' practical work experience in their trade;
  - workshop supervisor (chef d'atelier — CA): organises and co-ordinates the different vocational subjects taught in his section (the CAs are selected on the recommendation of joint administrative committees, from among vocational instructors (see below) whose names appear on a promotion list and who meet certain age and length-of-service requirements;
  - vocational instructor (professeur technique adjoint — PTA): teaches both workshop practice and related theory.

Candidates are selected on the basis of an entrance examination (see below) for the preparation of which there are correspondence courses run by the National Tele-education Centre (Centre national de téléenseignement) or by ENNEP evening courses. They are appointed as student teachers and are immediately paid the starting salary for their category. They are eligible for permanent appointment only after completing a 2-year training period (see below).

Permanent teachers employed full-time (titulaires) are subject to the rules and regulations applicable to the civil service in general. Their terms of recruitment and service are fixed by the Ministry of Education.

A number of teachers are employed in an auxiliary capacity or on a contractual basis (about 33 per cent of all CET teachers in 1966-1967). These teachers are, in general, people who are studying for the ENNEP entrance examination, married women who do not wish to work full-time, university graduates who have another job either in some other capacity within the civil service or in the private sector, retired teachers, etc. Auxiliary teachers replace permanent ones who are absent for such reasons as illness.

Teachers in the PEG, PETT and PTA categories who have been trained in Ministry of Education establishments are, in most cases, under an obligation to teach in state schools and centres for 5 years after completing their teacher training (should they not honour this obligation they may be required to reimburse the cost of their training to the state).

The salary scales applicable to the various categories of state vocational school teachers are the same as for general secondary education teachers with qualifications at an equivalent level. The starting salaries are, however, generally lower than those offered in industry for work at comparable level requiring similar qualifications. The French Economic and Social Council has had occasion to point out that this is one of the main obstacles to the recruitment of the various categories of technical and vocational teaching staff. Because of the level of salary they receive the social position of these teachers is relatively low, in spite of the qualifications they are required to have.

Occasionally teachers are detached from state schools to teach in state-approved private vocational schools, e.g., in the training centres of large private undertakings. In principle, teachers at private vocational schools should hold the same certificates and diplomas as their counterparts in state vocational schools, but the following, inter alia, may be accepted instead:

- for PEG teachers: a senior secondary school certificate (baccalauréat);
- for PETT teachers: the BP in a given speciality;
- for PTA teachers: 5 years' trade experience (they may be required to sit for a public examination).

## Quantitative requirements

A combination of factors — principally the large generations resulting from the post-World War II population explosion following hard upon the abnormally low birth rate of the inter-war period, educational reform, and the social and economic factors which have resulted in both a voluntary extension of schooling and an increase in the number of young people who have opted for technical and vocational occupations — has had a marked effect on teaching staff requirements. In 1966-1967 there were 341,000 state CET pupils (about double the figure for 1955-1956) and 167,500 pupils attending private schools of a similar nature (about 70 per cent up on the 1955-1956 figure). The corresponding state CET figure for 1968-1969 was 466,000; for 1969-1970 it is 509,000.

The number of teaching posts approved for the vocational schools (CET) was 11,123 in 1950 and 13,369 in 1960. In 1966-1967, there were 10,975 full-time and 391 part-time general education and technical theory teachers plus 11,967 full-time and 162 part-time vocational instructors making a total of nearly double the 1960 figure. During the same year (1966-1967) there were 13,218 teachers employed in private establishments similar to the CET, distributed in about the same proportions over general education, technical theory and practical instruction.

According to recent information, the number of permanent teachers employed in state CETs increased by 3,640 between 1968-1969 and 1969-1970.

The task of estimating requirements should be facilitated in two ways: by the existence of internal planning groups (groupes de planification interne — PIM) within the Ministry of Education who are assisted by regional educational planning groups (groupes de planification de l'enseignement dans les régions — PER) and whose job it is to provide the Minister with provisional estimates of needs together with an indication of the means required for implementing educational policy; and by the work of the Education Committee which, since the autumn of 1969, has been helping the Planning Commission to prepare the VIth French Plan.

The salary differences which exist between industry and education, as well as the fact that new teachers have for some years now been drawn from numerically smaller generations in relation to the large ones providing the pupils of the CETs, have given rise to serious teacher recruitment problems. Most teachers have had to accept long hours of overtime. The number of teachers has grown considerably (as shown by the figures given above), but a large number of teaching posts are still occupied by auxiliary or contractual teachers. In future, young teachers will be recruited from the larger generations born just after World War II, and the introduction of 2-year BEP courses to replace the 3-year CAP courses will ease the shortage of vocational teachers and premises. At the same time, however, the extension of general education prior to commencing vocational courses will increase the need for general education teachers. At the present time there is still a marked shortage of mathematics teachers.

In order to alleviate the shortage of teachers of certain subjects, the Minister of Education determines annually (for up to 50 per cent of the posts vacant) the subjects for which PEG, PETT and PTA teachers may be recruited from among the successful candidates in specially organised competitions.

These competitions are open to:

- auxiliary general education teachers with the senior secondary school certificate who are teaching in a CET or a technical secondary school (lycée technique);
- auxiliary technical theory or practical teachers who have had 3 years of full-time teaching experience in a CET or a technical secondary school.

The competition consists of giving a lesson to a class of pupils followed by an interview with the board of examiners.

## Administration

With certain exceptions — in particular, training for agriculture which comes under the Ministry of Agriculture, and adult vocational training which falls under the authority of the Ministry of Social Affairs — education is the exclusive responsibility of the Ministry of Education. A special department for general, technical and vocational education staff has been set up within this Ministry to handle the recruitment, training and administration of teachers. The Ministry has recently been completely reorganised and now has two specialised services under the director of pedagogics, education and guidance: one for general education and the other for technical and vocational education.

Aims and methods

The training of CET teachers is given either in an ENNEP or in a CET under the supervision of the principal and teaching staff of the ENNEP.

The training given at an ENNEP is intended primarily:

- to adapt the student teachers' knowledge and skills to the special character and needs of vocational training;
- to give the student teacher a general initiation into educational techniques and the specific psychological and pedagogical problems of adolescents;
- to give them teaching practice.

The instruction accordingly comprises courses in general pedagogics and exercises in practice teaching.

Methods of instruction (which include active teaching methods) are taught in a practical framework by the psychology teacher in liaison with the specialised teachers. Much of the study time is given over to actual teaching in the classrooms of a CET, trying out new methods of instruction.

Students

The level of education, other qualifications and age limits normally required of candidates for teaching posts, can be summarised as follows:

General education teachers (PEG): are usually recruited by means of a separate competition for each subject and open to:

- permanent primary school teachers not more than 40 years of age;
- candidates between 20 and 35 years of age who are eligible for admission to the relevant section of the higher technical teacher training institute (Ecole normale supérieure de l'ensignement technique — ENSET) or of certain higher teacher training institutes (Ecole normale supérieure);

- candidates between 20 and 35 years of age who, in addition to their senior secondary school certificate, have the certificate formerly required for a university degree in education or a certificate awarded upon completion of the first year of study for a university arts or science degree.

Technical teachers (theory) (PETT): candidates for the post of PETT in home economics, social science, commerce and art must be over 21 and under 45 years old; candidates for other PETT posts must be at least 21 but not more than 45 years of age, and have at least 5 years of experience in their chosen occupation or in technical and vocational teaching. This 5-year period may be reduced to 4 years for candidates who were trained in a state technical school or college which offers a course of more than 3 years' duration and trains to a standard higher than that of the CAP.

The certificates required vary according to the subject. The following persons are eligible to enter the competitions:

Technical drawing section

- persons eligible for the corresponding section of the ENSET;
- holders of one of the following: senior secondary school certificate in mathematics and technical subjects, certificate awarded by one of the former national vocational schools (école nationale professionnelle — ENP, which provided training of a higher level than the CET) or by a similar establishment, higher vocational certificate at skilled worker level (BP) in technical drawing, higher technician certificate (BTS), junior industrial technician certificate (brevet d'enseignement industriel — BEI), etc.;
- permanent PTAs teaching at a CET or technical secondary school (lycée technique);

- applicants with exceptional occupational qualifications (subject to the approval of the Minister of Education).

Exceptions may be made for candidates who, while lacking the prescribed number of years of practical experience, have such certificates as a senior secondary school certificate, a technician certificate, or a BP.

Commercial section

- holders of a diploma such as the BTS (commerce) or the final certificate or diploma of a business college (école supérieure de commerce);
- candidates with 2 years' work experience in the occupational speciality or 2 years' experience teaching it as an auxiliary teacher in a state technical or vocational school, plus a certificate, such as a senior secondary school certificate, a state technical secondary school certificate in commerce, or a technician certificate.

Social science section

inter alia: industrial welfare officers; women with a diploma in child care; diplomaed social workers (or other persons authorised to do social work); certificated nurses; diplomaed organisers of mass education for adults (animateurs socio-culturels titulaires du diplôme d'Etat de conseiller populaire), workers in special education (e.g. for delinquants or handicapped) (éducateur spécialisé diplômé d'Etat); holders of a university institute of technology diploma at higher technician level (social work department); students who have done courses corresponding to the first two years of an advanced home economics course.

These different categories of candidates must also have certain certificates or diplomas such as a senior secondary school certificate, the social studies certificate, the commercial course certificate (part 2), the hotel trades certificate (part 2) or a technician certificate.

Vocational instructors (PTA): are recruited by means of a competition open to candidates, who, according to the speciality:

- . are between 23 and 45 years of age (women) or 25 and 45 years of age (men);
- have had 5 years of practical work experience (exceptions may be made for people holding certain certificates or diplomas such as a technician or technical secondary school certificate, a BTS or a BP), who have passed a preliminary examination comprising a practical test and a study on the preparation of a job.

## Courses

### 1. Initial training

This is given in a full-time residential course in a national vocational teacher training college (ENNEP). It is essentially pedagogical in character and is centred on the basic metal trades and the building trades (including electricity). Women are trained in traditional women's occupations (dressmaking, tailoring, fashion goods, etc.).

The instruction is both theoretical and practical: general theory of pedagogics, the psychology of adolescents, the techniques of vocational instruction, diagrams and use of the blackboard, demonstrations and experimental work. Practical teaching experience is acquired through observing and giving lessons at nearby vocational schools co-operating with the ENNEP.

The training is common to all categories of teacher for vocational schools (CET) as the different kinds of instruction which they are to provide must be mutually complementary.

This training lasts one academic year.

2. Further training

Short training courses are organised for technical and vocational teachers to help them to improve the quality of their instruction and to initiate them in new teaching techniques.

Information sessions and visits to industrial or commercial undertakings and short practice periods are arranged as well, in order to give these teachers a chance to exchange experiences and to update their knowledge of the latest techniques in their particular speciality.

A number of television programmes have been organised over the past few years to provide further training or information to vocational and technical school teachers. These programmes deal especially with the teaching of mathematics and technology.

Examinations and certificates

Candidates who complete the vocational teacher training college course receive a certificate qualifying them to teach in a CET after passing an examination which comprises a written test(taken at the end of the ENNEP course) and oral and practical tests (taken during the following year in the CET to which they have been assigned). This certificate is required in order to obtain a permanent post. If a student-teacher fails this examination, he may still teach in a CET but he must take the examination again during his second year of teaching. If he fails again at his second attempt he may take the examination during his third year. If he does not obtain the certificate on this occasion he is dismissed at the end of the third year.

Financial assistance for students

Training in the ENNEP is free of charge. The student teachers also receive a basic salary throughout their training there (see above).

Teaching staff

The ENNEP teaching staff is comprised of highly qualified persons (most of whom are of university level) and a number of part-time specialists to teach the technical subjects for which a first-hand and long practical experience of the occupation is of special importance.

Research

There are a number of bodies carrying out pedagogical research for technical and vocational education, particular attention being paid to research into ways of improving the training of technical and vocational teachers. Among these bodies are: the National Pedagogical Institute (Institut pédagogique national), the Council for Pedagogical Research (Conseil de la recherche pédagogique), the Commission for the Study of Audio-visual Education and Training Problems (Commission d'études des problèmes d'enseignement et de formation par les techniques audio-visuelles), the Permanent Commission on the Use of Audio-visual Techniques in Education (Commission permanente relative à l'utilisation des techniques audio-visuelles dans l'enseignement), the Technical (and Vocational) Training Pedagogical Research Centre (Centre de recherches pédagogiques de l'enseignment technique (et professionnel)), which has a commercial and an industrial department, and the Committee for Pedagogical and Technical Studies (Comité d'études pédagogiques et techniques). A research and development committee has just been set up to improve the co-ordination and efficiency of existing and future facilities in the field of education. In addition, experimental groups (groupes fresques) have been made responsible for proposing the main lines which research should follow.

Future plans

Several measures have been proposed for encouraging young people with the necessary qualifications to become technical or vocational teachers: raising the starting salaries so as to reduce the difference between the starting and final salaries; improving housing facilities; introducing part-time or half-time teaching contracts in order to stimulate recruitment, especially from the ranks of married women and university graduates who are continuing their studies. Some years back, a Committee of the National Assembly suggested introducing, inter alia, "productivity bonuses" for teachers (to be calculated on the pass-rate among the pupils they prepared for the examinations), bonuses for excessive work loads and improved promotion possibilities.

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All young people who are entering employment after 9 or 10 years of compulsory schooling are required by law to attend vocational school for 1 to 2 days a week, for related theoretical instruction and further general education until they either reach the age of 18 or pass a prescribed qualifying examination for a trade or other occupation. There are also vocational and technical secondary schools which provide both practical and theoretical training on a full-time basis. Vocational teachers for the part-time vocational schools are trained almost exclusively at general or technical universities. Entry requirements normally include full secondary education and, on an average, 12 months' practical work experience. The training lasts 4 1/2 to 6 years (according to the state) and includes 18 to 24 months' practice teaching. It is normally concluded by state examinations which are taken at two levels: after the theoretical studies and on completion of the practice teaching.

Prepared on the basis of information supplied by Dr. G. Grüner,
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1969

## Background

Young people taking up employment after completing their full-time compulsory schooling — at the age of 15 or 16, according to the state (Land) — are required by law to attend a vocational school (Berufsschule) for one to two days a week (minimum: 8 hours) until they reach the age of 18 or pass a prescribed qualifying examination for a trade or other occupation. This regulation applies to all such young people, whether they are under a contract of initial training (Berufsausbildung), engaged as apprentices (Lehrling) in an artisan trade, or employed in some other capacity.

The part-time related theoretical instruction (technology, trade mathematics, technical drawing) and further general education (civics, economics, German) given to these young people at vocational schools is available for industrial and artisan trades as well as for occupations in the clerical, commercial, agricultural and home economics fields.

In addition to these part-time vocational schools, there are full-time vocational schools (Berufsfachschule) which give both practical and theoretical vocational training and further general education to young people who have completed 8 to 10 years of general education. The period of training at these schools varies between one and three years. Part of this period may count towards completion of the required period of training under an apprenticeship contract or a contract for initial training. Some full-time vocational schools provide full training up to skilled worker level. About 10 per cent of all young people undergoing initial vocational training attend full-time vocational schools.

Besides the part-time and full-time vocational schools there are three types of technical secondary school (Fachschule (mainly for adults with prior training and work experience), Fachoberschule and Technisches Gymnasium (both for young people who have completed grade 10)).

These schools give training towards technician qualification (all three), promotion to foreman (Fachschule) and prepare candidates for admission to university level training (Fachoberschule and Technisches Gymnasium). There are also a number of upgrading courses (Berufsaufbauschule) which give further general education, at post-grade 10 level, to apprentices or ex-apprentices.

For all these different types of school there are two main categories of vocational teacher: teachers of general and theoretical (technical) subjects and teachers of practical work. The former receive their training at universities (general and technical); the latter are usually trained foremen or technicians and may receive an additional one or two years of pedagogical training.

This text is concerned primarily with the teachers of general and theoretical (technical) subjects at part-time vocational schools for industrial and artisan trades.

## Development of vocational teacher training

The training of vocational teachers in the Federal Republic of Germany is closely connected with the development of the country's vocational school system. The latter is based on two ideas.

First, there is a traditional conviction that education should not end with the completion of so many years of compulsory schooling, but that young people need educational help and guidance throughout their subsequent formative years of adolescence. Secondly, it is recognised that technical development now demands so much theoretical knowledge that it can no longer be acquired through practical work alone.

As a result of these two trends, the system developed through various stages (Sunday schools run by religious orders, schools for further general education, guild-sponsored and state-run trade schools) into the present network of compulsory part-time vocational schools attended by apprentices, other young trainees in employment and young workers. Its aim is to give instruction in general education subjects and civics as well as in theoretical technical subjects.

The first state to introduce an official examination to qualify teachers for employment in a trade school was the Grand-Duchy of Baden (1837). After 1900, independent teacher training colleges began to be established for trade school teachers. These colleges provided a one-year course, for which they accepted primary school teachers and graduates from technical secondary schools for training.

After the first world war, when the trade schools were renamed vocational schools (Berufsschule), two forms of vocational teacher training began to emerge. Some states (Baden, Braunschweig, Hamburg, Sachsen, Thüringen and Württemberg) trained their vocational teachers at general or technical universities; others at special pedagogical institutes (Berufspädagogisches Institut). The institutes accepted secondary school graduates with two years of practical work experience, primary school teachers with practical training, and graduates from technical secondary schools, and gave them 2 (or 3) years' training (respectively 4 or 6 semesters).

In the 1930s training of four semesters at a pedagogical institute developed further and gradually became the standard pattern, and the recruitment of student teachers included a fairly large number of foremen.

From 1945, pedagogical institutes or academies were established in which training was extended to six semesters and which were raised to university status. From about 1956 onwards the states have gradually transferred vocational teacher training to the universities (although responsibility for the examinations which student teachers are required to take remains with the states). It has been generally felt that study at a big university (technical or general) is a better preparation for the heavy duties of the vocational teacher than study at a relatively small independent institute.

A schema, by state, of the different patterns of training organisation is given in the Annex, page 14.

Status and functions of vocational teachers

Passing the final state examination usually gives the vocational teacher (Gewerbelehrer) the right to teach theoretical technical subjects at part-time and full-time vocational schools and technical secondary schools — technology, trade arithmetic, technical drawing in a particular trade area (e.g. mechanical or electrical engineering) — as well as one or two general subjects, such as civics, history, economics, mathematics, physics, chemistry, German, foreign languages, sport. He may be required to teach the subjects at different levels according to the type of school.

In large towns or centres vocational schools are normally organised by groups of related trades, e.g. there are schools for metal trades with classes for fitters, tool and die makers, automobile mechanics. Most of the schools are maintained by the municipalities or districts, whereas personnel costs are borne mainly by the states. In small towns and in rural areas the number of trainees in one trade is often too small to warrant setting up separate trade classes. Although efforts are made to form classes comprising trainees in several related trades this is not always possible. As the efficiency of instruction diminishes with increases in the number of trades in one class, there is a growing tendency to organise classes for these trades (and for uncommon ones) at regional, state or even federal level. In such cases the day-release (8-12 hours per week) system is usually replaced by block-release classes for periods of 4 to 6 weeks a year.

In the part-time vocational schools all the instruction, technical as well as general, to one class is normally given by the same teacher. Full-time vocational schools and secondary and other technical schools, however, usually arrange for the instruction to be given by specialised subject teachers. This trend is now becoming apparent in the part-time vocational schools also.

As a result of this general organisational pattern of the instruction given in vocational schools, the wide range of subjects taught and functions assumed by the vocational teacher, and the high level of qualification required, the professional status of the vocational teacher is high. The salaries and titles of vocational teachers have been assimilated to those of general secondary school teachers, and this has led to a rise in their social status also.

It is becoming increasingly common (especially in the full-time vocational schools) for teachers of related theoretical instruction and general education subjects to be assisted by practical instructors (trade instructors, mastercraftsmen, shop instructors). This is particularly the case in technical experimental and demonstration work, where the practical instructors tend to be responsible for the demonstration of machines and the carrying-out of experiments. The main task of the practical instructors, however, is to give instruction in the school workshops in specific trade skills and, but to a lesser extent, in related theory.

## Quantitative requirements

The vocational and technical schools of the Federal Republic of Germany together employ some 41,000 vocational or technical teachers; of these, about 25,000 are employed by the part-time vocational schools. There is, however, a serious shortage of teachers in several specialities, so that in many cases the number of lessons prescribed by law cannot be given. There are several reasons for this shortage: the number of newly trained teachers is not yet sufficient to make up for losses from natural causes and from the war period; the tendency to create more full-time vocational schools and new types of school (e.g. the Fachoberschule in 1969) increases staffing requirements; the period of training for vocational teachers is lengthy; there is a general shortage of teachers of mathematics, the sciences and technology.

In order to cope with the situation, many states have taken temporary emergency measures:

- permitting graduate engineers, physicists, chemists and other specialists to enter the period of practice teaching (Referendariat) (see below) without undergoing previous pedagogical training, and to be recognised as qualified vocational teachers after 1 1/2 to 2 years' teaching experience;
- shortening the period of university pedagogical training for higher technicians;
- admitting higher technicians as teachers of technical subjects after 1 1/2 to 2 years of training at special institutes.

## Administration

The principles and general organisation of vocational teacher training are the responsibility of the Minister of Education (Kultusminister) in each state. A certain degree of uniformity is achieved through the Permanent Conference of Ministers of Education (Ständige Konferenz der

Kultusminister), a consultative body composed of all the state Ministers of Education. Decisions taken by the Permanent Conference come into force only after being ratified by the governments of the individual states.

The administrative organisation of vocational teacher training is the responsibility of the general or technical universities; in most cases it is the department of science, philosophy or economics which has primary responsibility. The first state examination, which normally concludes the theoretical studies part of the training, is held by representatives of the relevant ministry of education, not the university.

The subsequent period of practice teaching and the second state examination are also the exclusive responsibility of the ministry of education.

## Aims and methods

The aim of basic vocational teacher training is to provide the student teachers with:

(1) basic practical knowledge related to a particular occupation or group of occupations, and the conditions under which they are practised;
(2) knowledge, at university level, of the technology of the occupation or branch of economic activity concerned;
(3) knowledge of pedagogics, the social and political sciences, economics and the general education required for teaching classes of adolescents;
(4) practical experience in teaching.

The syllabi are usually co-ordinated with those of other university departments, and vocational student teachers take many of their courses with engineering students, student teachers for general education, etc. The methods applied are a combination of practical work experience (sometimes acquired through service as an apprentice, theoretical studies and guided teaching practice. Preparation of a short thesis and seminar discussions normally form part of the university syllabus.

Students

Candidates for vocational teacher training are normally required to have passed the senior secondary school leaving examination (Abitur). Most universities also accept graduates of state colleges for higher technicians, provided they have passed their final examination with at least the mark "good" and have obtained a ministry of education certificate (Hochschulreife) qualifying for access to university. In such cases they may study only in the department which corresponds to their line of higher technician training.

In addition, all students must have completed a period of supervised practical work experience in an undertaking (Praktikum). The duration of this period varies from 6 to 18 months (according to the state) and its contents must correspond to the line of study chosen. A completed apprenticeship is recognised as a substitute for this period of practical work experience.

The average age of the students entering vocational teacher training is 20 to 21 years, varying according to the length of the practical work experience which they have had to complete before being accepted for training.

Evening courses and special day courses of further education are available for skilled workers and other persons in employment who wish to qualify for entry into the vocational teacher training institutes. The aim of such courses is to bring the students up to the level of senior secondary school certificate. These courses are referred to as the "second educational channel" (zweiter Bildungsweg). However, only relatively few teachers enter training for the profession through this second channel.

## Courses

### (1) Duration of training

The total duration of training for teachers at vocational schools for industrial and artisan trades is 6 to 8 years. This period is divided approximately as follows:

- 6 to 18 months of practical work experience in appropriate undertakings, before and during teacher training;
- 6 to 8 semesters of theoretical studies at a general or technical university;
- 18 to 24 months of practice teaching (Referendariat) in a post-graduate course (Studienseminar).

### (2) Contents

### (a) Practical work experience

Practical work experience in employment is a compulsory part of the training for all teachers of theory at vocational schools. Its purpose is to give the student teacher experience and knowledge relevant to his future work as a vocational teacher and, in particular,

- fundamental skills and knowledge in the technical line he has chosen to study;
- basic knowledge of the organisation and structure of undertakings in order to gain insight into rational work methods;
- knowledge of the sociological structure and social problems of an undertaking;
- elementary knowledge of the psychology of working youth.

A part — usually 6 months — of the prescribed period of practical work experience (which varies according to state) has to be obtained before starting teacher training, the remainder during the holiday periods between semesters (cf. Annex for details of these variations). Full apprenticeship or completed initial training, with the relevant final examination, is normally accepted in lieu of the prescribed practical work experience. In some states the period is spent under the general guidance and supervision of a special institute (Praktikantenamt).

(b) Theoretical studies

Each semester comprises a total of 160 to 200 hours of theoretical studies covering three major fields: educational sciences, technology, economics and social sciences.

- Educational sciences

  The proportion of this field in the syllabus varies at the different universities from about 8 per cent (Stuttgart Technical University) to about 38 per cent (München Technical University). Subjects covered include vocational pedagogics, general pedagogics, psychology, philosophy, general and special didactics. At most universities 1 to 2 months of practical teaching experience in schools are included to acquaint the student teacher with life at a school and to give him an opportunity to make his first attempt at teaching.

- Technology

  This constitutes the main field of study since it covers the subjects which form the major part of instruction given at a vocational school. Its share of the total syllabus hours varies from about 40 per cent (University of Hamburg) to about 85 per cent (Stuttgart Technical University). The student teacher can usually choose one of a number of technical fields in the light of his choice of a line of specialisation and of his practical work experience. These fields correspond largely to the occupational coverage of vocational schools:

metal trades
building trades
graphic arts
textiles
cosmetology
electrical trades
woodworking trades
food industry trades
chemical industry occupations

The training consists of lectures and seminar discussions as well as basic studies in mathematics, chemistry, physics, etc.

- Economics and social sciences

  Student teachers are required to choose one or more subjects in the following fields outside their chosen technical field of study:

  civics
  history
  geography
  economics
  German
  foreign language(s)
  sport
  religion
  mathematics
  physics
  chemistry

  The proportion of this third field of study in the syllabus varies from about 5 per cent (Stuttgart Technical University) to 36 per cent (University of Hamburg).

(c) Practice teaching

After completing their theoretical studies, student teachers begin their period of practice teaching in a post-graduate course (Studienseminar). (In most cases some practice teaching has already been done during the theoretical studies.) While the post-graduate course varies in duration from 18 to 24 months, the current trend is to reduce it to 18 months.

During this period the student teacher's time is divided between observation and supervised teaching practice in a specially selected school

(Unterrichtsschule) and attendance at lectures and seminar discussions. The purpose of the latter is to develop in the student teacher an understanding of the pedagogical and didactical aspects of his teaching practice, and generally to broaden his knowledge of youth psychology, the legal aspects of employment and education, civics, conditions of work, etc. The student teachers are normally required to write reports on their activities and experience, or to prepare papers (for seminar discussion) on subjects related to training in their field of work.

## Examinations

There are two levels of examination. Both are state, not university examinations.

The first takes place at the end of the theoretical studies part of the training. Requirements normally include a pass in one or several written and oral examinations — by subject, by year of study or as a final examination — and the submission of one or more examination papers on a principal subject of study and/or an educational problem. Student teachers who fail the first examination are, as a rule, allowed to take it again.

The second examination is a state examination taking place at the end of the period of practice teaching. It generally includes the submission of a thesis on a subject selected for special study, an oral examination and an assessment of the candidate's performance when teaching different types of subject to a class.

## Financial assistance for students

Vocational student teachers receive the same allowance as all other university students. At present it amounts to about DM 350 per month (US$96).

## Staffing

Vocational student teachers are trained by the staff of the general and technical universities; the instruction in technical subjects is given by staff of the appropriate departments. In consequence the staff responsible for teaching vocational student teachers normally possess university-level pedagogical qualifications and are required to engage in scientific research work in addition to their teaching functions. This dual role of the teaching staff is considered of the greatest importance in maintaining both a high standard of teaching and close contact between pedagogical and practical working life.

## Summary of arrangements for vocational teacher training by state (including Berlin (West))

| | State | Baden-Württemb | |
|---|---|---|---|
| | Basic legislation | Law of 1.8.1962<br>Decree of 14.8.1968 | |
| Practical work (Praktikum) | Duration | 12 months | |
| | Minimum required before entering university | 6 months | |
| Theoretical studies | Training given at | Technical University, Stuttga | |
| | Duration | 8 semesters | |
| | Special branches | Architecture, civil engineeri engineering, electrical engine | |
| | Examinations | Intermediate examination<br>University degree examinatio teachers | |
| Practical teaching experience (Referendariat) | | Higher level | |
| | Minimum admission requirements | University degree or state examination for higher level teaching<br>University degree in engineering, science, mathematics, etc. | Gra tec<br>Firs atio prin sch |
| | Duration | 2 years (may be shortened in special cases) | 2 y |
| | Training given | Special post-graduate course (6 months)<br>Guided teaching practice (18 months) | Voc trai Stu<br>Gui pra |
| | Examination | Second state examination (pedagogical):<br>Written examination<br>Oral examination<br>2 test lessons | Sec ina<br>Wr Ora 2 te |

| Baden-Württemberg | | Bayern | Berlin (West) | Bremen | Hamburg | Hessen | |
|---|---|---|---|---|---|---|---|
| .1962<br>14.8.1968 | | Law of 30.10.1962<br>Decrees of 11.4.1962, 14.10.1965, 9.12.1966, 25.8.1967 and 24.7.1969 | Decrees of 20.8.1958 and 16.4.1964 | Decree of 13.4.1965<br>Ordinances of 9.4.1963 and 15.4.1965 | Law of 9.12.1966<br>Decrees of 26.7.1960 and 11.6.1968 | Law of 30.5.1969<br>Decrees of 26.3.1969, 20.6.1969, 21.3.1962 and 16.7.1966 | Law<br>26.4.<br>Dec<br>1.9.1<br>Ordi |
| s | | 18 months | 12 months | | 18 months | 12 months | 12 m |
| | | 12 months | 6 months | | 18 months | 6 months | 6 m |
| l University, Stuttgart | | Technical University, München | Technical University, Berlin | Bremen does not have a theoretical studies course for vocational school teachers. Qualified teachers or student teachers are recruited from other states in order respectively to enter service direct or to carry out the necessary practice teaching before taking the second state examination | University of Hamburg | Technical University, Darmstadt<br>University of Giessen | Tec<br>Han |
| ers<br>ure, civil engineering, mechanical ng, electrical engineering | | 6 semesters<br>Metal trades, electrical trades, construction, woodworking trades, chemicals, textile and clothing trades, food processing | 8 semesters<br>Production engineering, motor vehicle construction, instrument engineering, high tension electrical engineering, electronics, building trades, civil engineering, food chemistry | | 8 semesters<br>Metallurgy and mechanical engineering, electrical engineering, construction engineering, chemical engineering, textiles and clothing industry, graphic arts, hygiene, nutrition and food processing | 8 semesters<br>*at Darmstadt:* metal trades, building trades, electrical trades, chemicals, graphic arts, cosmetology, textiles<br>*at Giessen:* nutrition and food processing | 8 se<br>Meta<br>ical<br>cal<br>stru<br>food<br>and<br>cos |
| ate examination<br>degree examination for vocational | | Intermediate examination<br>First state examination | Intermediate examination<br>First state examination | | First state examination | *at Darmstadt:* Intermediate examination<br>First state examination<br>*at Giessen:* Intermediate examination<br>Degree (recognised as first state examination) | Pre<br>as g<br>First |
| her level | Middle level | | | | | | |
| degree or nination for el teaching<br>degree in ng, science, tics, etc. | Graduate higher technician course<br>First state examination for teachers at primary and middle school | First state examination | First state examination | First state examination<br>Degree in engineering or science, or other degree at equivalent level | First state examination<br>Science or engineering degree, or other degree at equivalent level | First state examination<br>Degree in science or engineering, or other degree at equivalent level | First<br>Deg<br>engi<br>gree |
| (may be in special | 2 years | 2 years (may be shortened in special cases) | 18 months | 18 months | 18 months | 18 months | 18 m |
| ost-gradu- (6months)<br>aching 18 months) | Vocational teacher training institute, Stuttgart (12 months)<br>Guided teaching practice (12 months) | Guided teaching practice (12 months)<br>Teaching practice in other vocational schools (mainly independent work) (12 months) | Special post-graduate course (3 days per week)<br>Guided teaching practice (2 days per week) | Special post-graduate course<br>Guided teaching practice | Special post-graduate course (2 days per week)<br>Guided teaching practice (3 days per week) | Special post-graduate course (1 day per week)<br>Guided teaching practice | Spe<br>cou<br>voca<br>mon<br>Spe<br>cou |
| tate exam- (pedagogi-<br>xamination<br>nination<br>sons | Second state examination:<br>Written examination<br>Oral examination<br>2 test lessons | Second state examination:<br>Thesis<br>Written examination<br>Oral examination<br>3 test lessons | Second state examination:<br>Thesis (pedagogical subject)<br>Oral examination<br>2 test lessons | Second state examination (pedagogical)<br>Thesis<br>Oral examination<br>2 test lessons | Second state examination:<br>Thesis (pedagogical subject)<br>Oral examination<br>2 test lessons | Second state examination:<br>Thesis (pedagogical subject)<br>Oral examination<br>2 test lessons | Sec<br>ation<br>T<br>su<br>O<br>2 |

| essen | Niedersachsen | Nordrhein-Westfalen | Rheinland-Pfalz | Saarland | Schleswig-Holstein |
|---|---|---|---|---|---|
| .5.1969<br>of 26.3.1969,<br>21.3.1962 and | Laws of 1.6.1967 and 26.4.1968<br>Decrees of 15.9.1964, 1.9.1967 and 26.3.1969<br>Ordinance of 5.4.1968 | Law of 9.6.1965<br>Decrees of 29.7.1960, 27.7.1965 and 17.3.1969 | Law of 11.7.1962<br>Decree of 17.12.1965 | Law of 11.7.1962<br>Decrees of 11.12.1962 and 20.7.1965 | Decree of 14.2.1966 |
| s | 12 months | 6 months | 12 months | 12 months | |
| | 6 months | The period of practical work experience may be taken at any time before sitting for the first state examination | 6 months | 6 months | |
| University,<br>t<br>y of Giessen | Technical University, Hannover | Technical University, Aachen<br>University of Koln | University of Mainz | University of Saarbrücken | |
| ers<br>*nstadt:* metal<br>uilding trades,<br>trades, chemi-<br>phic arts, cos-<br>, textiles<br>*n:* nutrition and<br>essing | 8 semesters<br>Metallurgy and mechanical engineering, electrical engineering construction engineering, food processing, textile and clothing industry, cosmetology | 8 semesters<br>Production engineering, process engineering, motor vehicle engineering, electrical engineering, chemical engineering, chemicals, textile engineering, construction engineering, mining engineering, foundry and iron and steel production engineering, painting, graphic arts and industrial design | 8 semesters<br>Mechanical engineering, electrical engineering (electronics and high tension) | 8 semesters<br>Metallurgy and mechanical engineering, electrical engineering, construction engineering, wood processing and wood products engineering, food processing, clothing industry | The Land of Schleswig-Holstein does not have a theoretical studies course for vocational school teachers. Qualified teachers or student teachers are recruited from other states in order respectively to enter service direct or to carry out the necessary practice teaching before taking the second state examination |
| *adt:* Intermedi-<br>nation<br>e examination<br>*n:* Intermediate<br>on<br>recognised as<br>e examination) | Preparatory examination as graduate engineer<br>First state examination | Intermediate examination<br>First state examination | Intermediate examination<br>First state examination | Intermediate examination<br>First state examination | |
| e examination<br>science or en-<br>or other de-<br>quivalent level | First state examination<br>Degree in science or engineering, or other degree at equivalent level | First state examination<br>Degree in science or engineering, or other degree at equivalent level | First state examination<br>Degree in engineering or science, or other degree at equivalent level | First state examination<br>Degree in science or other degree at equivalent level | First state examination<br>Engineering or science degree, or other degree at equivalent level |
| s | 18 months | 2 years (may be shortened in special cases) | 2 years (may be shortened in special cases) | 2 years (may be shortened in special cases) | 18 months |
| post-graduate<br>day per week)<br>eaching prac- | Special preparatory course at a selected vocational school (6 months)<br>Special post-graduate course (12 months) | Course at selected vocational school<br>Special post-graduate course | Special post-graduate course (about 1 day per week)<br>Guided teaching practice (about 4 days per week) | Special post-graduate course (2 days per week)<br>Guided teaching practice (3 days per week) | Special post-graduate course (1 day per week)<br>Guided teaching practice (4 days per week) |
| state examin-<br>(pedagogical<br>mination<br>ssons | Second state examination:<br>Thesis (pedagogical subject)<br>Oral examination<br>2 test lessons | Second state examination:<br>Thesis (pedagogical subject)<br>Oral examination<br>2 test lessons | Second state examination:<br>Thesis (pedagogical subject<br>Oral examination<br>2 test lessons | Second state examination:<br>Thesis<br>Oral examination<br>2 test lessons | Second state examination:<br>Thesis<br>Oral examination<br>2 test lessons |

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In Ireland, most vocational training is provided in apprenticeship after 8 years of general education (age 15). It normally lasts 5 years. The vocational schools provide full-time general and vocational post-primary education as well as part-time and block release courses for apprentices. Training courses for vocational teachers are organised for three major trade groups: metalwork, woodwork and the building trades. They comprise trade practice, trade theory and related theoretical instruction, languages, pedagogics, and teaching practice and are, generally, of 2 years' duration.

Prepared on the basis of information supplied by the
Department of Education, Dublin

1969

## Background

Full-time education is compulsory from the ages of 6 to 14 inclusive. Pupils who complete the primary school programme before reaching the minimum school-leaving age may go immediately into full-time general post-primary courses in secondary or vocational schools.

The systematic development of technical education started at the turn of the century after the Agricultural and Technical Instruction (Ireland) Act, 1898, came into force. The present system dates from the Vocational Education Act, 1930, and is based on the recommendations of a special commission of inquiry set up after the establishment of the Irish Free State in 1924.

Education provided in vocational schools is divided into two sections — general post-primary education and technical education.

General post-primary education courses prepare pupils for the Day Vocational Group Certificate Examination (taken after 2 years), the Intermediate Certificate Examination (taken after 3 years) and the Leaving Certificate Examination (taken after 5 years). The basic qualification for admission to trade apprenticeship is passes in specified subjects of the Day Vocational Group Certificate, or the Intermediate Certificate, examinations.

Technical education is defined as "education pertaining to trades, manufacturing, commerce and other industrial pursuits". Most skill training is provided on the job in apprenticeship, and is regulated by the 1959 Apprenticeship Act and the 1967 Industrial Training Act. The minimum age for entry is 15, and the normal duration of a trade apprenticeship is 5 years. Related instruction, given at the vocational schools under a system of day release or block release, is being progressively introduced for apprentices in designated apprenticeable trades. Apprentice training, therefore, usually includes practical craft training, trade theory and related technical instruction. Trade certificate examinations are provided by the Department of Education at two levels: junior and senior, corresponding to levels of knowledge and skill attained by the second and fourth years. Passing these examinations is neither compulsory nor a prerequisite for employment as a skilled worker.

Vocational schools were providing full-time post-primary education for 44,110 students in 1967-1968 as well as instruction under the system of day release and block release for 19,828 apprentices.

Development of vocational teacher training

The first training course for vocational teachers was organised in 1925-1926 for the woodworking trades. It was held at a temporary centre at Dublin, and was of 12 months' duration. Since 1950, these courses have been held at Gorey (County Wexford).

In 1927-1928, a 6-month course was organised for metal trades teachers. With two exceptions (additional courses organised at Cork in 1954 to 1956 and 1966-1967), all these courses have been held at Ringsend, Dublin.

The training period for both the woodwork and the metal trades courses has been progressively extended; they now last 2 years.

The first course for building construction teachers was held at the Gorey training centre in 1954.

Status and functions of vocational teachers

Almost one-half of the teachers in vocational schools are university graduates. These are usually the teachers of general education, rural science and commercial subjects. The sciences and mathematics are taught either by university graduates in science or by vocational teachers who have completed a special 2-year course.

In the industrial county boroughs and large urban areas, a distinction is made between vocational teachers of related theoretical instruction, general education subjects and trade practice respectively. In the smaller towns and rural districts, however, it is not at present possible to draw a clear-cut line between these various functions or to apply strictly the subject-teacher principle.

As a general rule, vocational teachers are assigned to both general education courses, woodwork or metalwork, mechanical drawing, mathematics or science subjects, and apprentice courses in trade practice and related theoretical subjects.

Vocational teachers may also be responsible for giving local (non-trade) evening courses for adults in certain practical subjects — e.g. ornamental metalwork, maintenance of agricultural machinery, household furniture-making.

Whatever their branch of education, teachers generally enjoy a high social status. As the emphasis on vocational education increases so will the status of the vocational teacher become progressively higher.

As from 1 July 1968, all three groups of teachers — primary, secondary and vocational — are paid a common scale of salary, with qualification and responsibility allowances in addition as applicable. The common scale is as follows:

| | |
|---|---|
| Married men: | £975 - £1,825 per annum |
| Women and unmarried men: | £780 - £1,450 per annum |

For purpose of comparison with salaries in industry, it may be stated that the basic pay (i.e. exclusive of overtime) of a skilled worker or craftsman is about £780 - £940 at the present time.

At the upper end of the incremental scale, the vocational teacher's salary compares favourably with that of persons in supervisory grades in industry. A number of senior technological and administrative grades of vocational education teaching posts carry considerably higher basic salaries than those quoted.

## Quantitative requirements

In the 1967-1968 school year, the numbers of teachers employed by vocational education committees (see below under "Administration") for the subjects stated were as follows:

| | full-time | part-time |
|---|---|---|
| Metalwork and engineering | 301 | 87 |
| Woodwork and furniture making and Woodwork and building construction | 458 | 60 |

Over the past years there has been a slow but steady rise in the number of vocational teachers employed to give instruction in these subjects and this is expected to continue. This is in line with the Government's general policy of improving vocational training facilities within the framework of its efforts towards further economic expansion.

## Administration

All public education, including vocational education, comes under the general control of the Department of Education. The Department consists of a central office in Dublin and a decentralised school inspectorate, whose members are located throughout the country.

It should be added that from 1960 to 1967, the promotion, programming and regulation of the workshop training of apprentices in designated trades was the special responsibility of the National Apprenticeship Board (An Cheard-Chomhairle), which was set up under the 1959 Apprenticeship Act.

Since 1967, the Board has been superseded by the Industrial Training Authority (An Chomhairle Oiliúna). This body is composed of representatives of workers, employers and educational interests.

Vocational schools are controlled by vocational education committees, set up under the 1930 Vocational Education Act, and subsequent amending Acts.

Special training courses for vocational teachers are conducted at two training centres — one at Ringsend and the other at Gorey. These centres are, respectively, under the control of the City of Dublin and County Wexford Vocational Education Committees, in so far as employment of staff, purchase of equipment and maintenance of premises are concerned. Matters relating to training programmes are arranged by the staff of the centres, in consultation with the Department of Education's inspectorate. The Department pays an annual grant to both committees to cover general costs.

## Aims and methods

In view of the varied functions to be fulfilled by the vocational teachers, particularly those in rural areas, and the different educational levels and background of the student-teachers, vocational teacher training constitutes an all-round programme. It provides language training, training in pedagogics and some further general education but concentrates on trade knowledge and skill and trade practice.

## Students

Candidates must at least have completed a post-primary certificate course; have trade experience, and have followed suitable courses of study in appropriate trade and technological subjects. The minimum trade experience required varies, according to the trade in question, from about 4 years of trade apprenticeship to 3 or more years of trade practice as a skilled worker after completion of apprenticeship.

Vocational teachers should, as a rule, be able to teach in both Irish and English.

For each of the three training courses for vocational teachers, there is an entrance examination which comprises two parts, a trade test and a language test.

| | I<br>Trade test (practical and theoretical) | II<br>Language test |
|---|---|---|
| Metalwork and engineering | Metalwork<br>Mechanical drawing | Irish and English (written and oral) |
| | Workshop calculations | Interview by specialist selection board |
| Woodwork and furniture making | Woodwork<br>Mechanical drawing | Irish and English (written and oral) |
| | Working calculations | Interview by specialist selection board |
| Woodwork and building construction | Building organisation and operations | Irish and English (written and oral) |
| | Carpentry and joinery | Interview by specialist selection board |

Courses

(a) Initial training

Separate courses are organised for vocational teachers in three major trade groups — metal work and engineering; woodwork and furniture making; and woodwork and building construction. The courses for the first two groups last 2 years, that for woodwork and building construction teachers 1 year. The first 3 months are probationary.

The subjects in each course are as follows:

**Metalwork and engineering**

- Workshop and garage practice
- Motor car engineering
- Technical drawing
- Engineering science
- Mathematics
- Electricity
- Theory of education
- Teaching methods (theory and practice)
- Smithwork
- Welding
- English
- Civics
- Irish

**Woodwork and furniture-making**

- Woodwork (educational)
- Carpentry and joinery and cabinet-making
- Building construction and structural engineering
- Drawing and design
- Mathematics and mechanics
- Theory of education
- Teaching methods (theory and practice)
- Physical education
- Plane and solid geometry
- English
- Civics
- Irish

**Woodwork and building construction**

- Building construction and structural engineering
- Builders' quantities
- Carpentry and joinery
- Plumbing and plastering
- Plane and solid geometry
- Mathematics and mechanics
- Theory of education
- Teaching me[illegible] (theory and practice)
- Manual training
- English
- Civics
- Irish

(b) In-service training

Short courses of a duration of from 2 to 4 weeks are organised during vacation periods. These courses are intended to help teachers to keep abreast of developments in industrial and educational fields.

## Examinations, certificates and probation

Examinations are held at the termination of each initial training course, and successful candidates are awarded the Vocational Teachers' Certificate, which is the normal qualification required for employment as a vocational teacher. The marks awarded to students for progress during the course are taken into consideration together with the results of the examination.

The vocational teacher appointed for the first time to a position of permanent full-time teacher in a vocational school is required to serve a probationary period of at least 2 years' duration. At the end of the 2 years, the teacher may be confirmed in his appointment, or retained on probation for a further period. If, after completing this further period of probation, a teacher is considered unsatisfactory, his appointment is terminated.

## Financial assistance for students

A scholarship is awarded to each candidate who is selected to attend the initial teacher training courses, provided that he undertakes:

1. to attend the whole course of instruction and to devote his whole time to the work of the course; and
2. on successful completion of the course, to act for at least 5 years as a vocational teacher, or — in default thereof — to repay such monies as are due from him in respect of maintenance, tuition and other expenses at the training course.

A scholarship may be withdrawn during the 3-month probationary period from a student who proves to be unfit for training as a teacher.

A scholarship entitles the holder to free instruction during the training course, and a maintenance allowance.

## Future plans

The Department of Education considers that, along with the expansion of vocational education and apprentice training, certain aspects of the present system of recruitment and training of vocational teachers should be reexamined. The pressing demand for vocational teachers and a shortage of training facilities, however, have precluded any recent substantial reorganisation or expansion of teacher training.

The limited amount of time available for pedagogics and teaching practice in the metalwork/engineering course in particular, is recognised as a drawback. The situation has become more critical since the Apprenticeship Act of 1959 widened the range of the training courses provided at the vocational schools. The Department intends to extend teacher training for metalwork and related trades into a 3-year course as soon as the necessary facilities can be made available.

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Vocational training in Italy may be acquired through full-time attendance at a public or private vocational school or centre, through apprenticeship under contract or in an undertaking not under apprenticeship contract. It begins at the age of 14-15 after 8 years of compulsory schooling. Vocational and technical teachers of general subjects and technology are recruited among university graduates, teachers of trade theory and practice among skilled workers or technicians. The Ministry of Education's National Pedagogical Centre for Vocational and Technical Education provides further technical and pedagogical training for teachers in all public vocational and technical schools. Instructors at training centres under the Ministry of Labour are trained at special instructor training centres which were originally set up by the Ministry but immediate responsibility for which has now been passed to semi-public bodies.

Prepared on the basis of information by Professor Rocco Calogero of the Ministry of Education

1969

## Background

Whether undertaken in a school, a training centre or on the job, vocational training for the skilled worker level in Italy begins at the age of 14-15 after an 8-year period of compulsory schooling. Depending on the trade or occupation to be pursued and the training method followed, the duration of training may vary from 1 to 5 years.

There are four ways of acquiring skill training.

1. In a 2-year or 3-year course at a public or private vocational school (istituto professionale) under the control of the Ministry of Education and within the general framework of the national education system.
2. In a 2-year or 3-year course of basic trade training at a vocational school or training centre run by a public, semi-public or private association or body and financially supported and controlled by the Ministry of Labour and Social Welfare. Falling within this category are the joint industrial training centres in Southern Italy (Centri interaziendali per l'addestramento professionale nell'industria nel Mezzogiorno — CIAPI). These have been developed through joint action by the Agency for the Development of Southern Italy (Cassa per il Mezzogiorno), the Ministry of Labour and the General Confederation of Italian Industry (Confederazione generale dell'industria — Confindustria).
3. Through on-the-job training under a contract of apprenticeship, controlled and supervised by the Ministry of Labour, which combines practical training on the job with compulsory related theoretical instruction. The duration of this training may not exceed five years.
4. Through training within an undertaking, often in the undertaking's own school or in a training bay, without apprenticeship contract and neither controlled nor supervised by any public authority.

The first three methods lead to an officially recognised trade certificate. The fourth method does not, although the trainee may in fact achieve an equivalent or even higher level of skill. It is often criticised, however, for prejudicing the mobility of workers by limiting training to the skills needed in the undertaking concerned.

Development of vocational teacher training

The post-war industrial expansion of the economy, and the consequent increase in the demand for skilled workers have emphasised the need for better instruction in the vocational schools. They have revealed the inadequacies of the prevailing practice of recruiting technical and vocational teachers and instructors direct from university or a technical institute, or straight from industry, without giving them any pedagogical training.

In 1953 the Ministry of Education set up the National Pedagogical Centre for Vocational and Technical Education (Centro didattico nazionale per la istruzione tecnica e professionale) as a first step towards raising teaching standards in vocational and technical schools.

Since 1954, the National Pedagogical Centre has concentrated particularly on providing technical refresher training, upgrading training and pedagogical training for teaching staff of all categories in both technical and vocational schools. The courses are voluntary.

In 1962 the Government set up a National Committee of Inquiry into the State and Development of Education in Italy (Commissione d'indagine sullo stato e sullo sviluppo della Pubblica Istruzione in Italia). The Committee investigated the educational activities being carried out by the various bodies and authorities referred to above and formulated proposals for a new organisational structure which would take into account the diverse economic and social needs of the country and those of the European Economic Community.

This new organisational structure has not yet been introduced, but Law No. 685 of 27 July 1967 (which approved the national economic plan for the 5-year period 1966 to 1970) underlined the urgency of the following reforms in the school system:

- the vocational schools should be reformed: the first 2-year period following compulsory schooling should give general education and multipurpose vocational training, and a third year following the 2-year period should give training specifically for qualification as supervisory staff. After this type of training, access to other types of training should be possible, under certain conditions;
- the senior secondary school should envisage an initial 2-year period geared largely to the different types of training and a restructuring of the 3-year periods which follow. During the initial 2-year period the possibility of transfer between the different streams must however be guaranteed.

In the beginning of the 1960s a new type of teacher training was introduced by the establishment of a vocational teacher training college (istituto di magistero professionale). One such college was set up at Latina in conjunction with an agricultural school. The administrative and legal status of this type of college within the educational system has not yet been established.

In 1953-1954 two instructor training centres (centro nazional formazione istruttori — CNFI) were set up under the sponsorship of the Ministry of Labour, one at Genova and the other at Napoli. At Genova the centre was organised as a special unit attached to a joint industrial apprentice training centre for the basic metal trades (the Scuola Interaziendale Apprendisti Calcinara). At Napoli the centre was established by the Government as a single unit for training both instructors and skilled workers for the building trades.

## Quantitative requirements

The national economic plan approved by Law No. 685 of 27 July 1967 envisages that, by 1980, changes in the occupational structure will have led to an increase in the number of skilled personnel from 6,170,000 in 1964 to 11,520,000.

In order to meet this demand the plan for the 5-year period 1966 to 1970 proposes that the annual number of graduates from vocational schools should be increased from 50,000 to 100,000. The remaining demand should be covered by out-of-school arrangements for the initial training and retraining of workers and for the promotion of workers in employment.

With respect to the objectives established by the national economic plan, the vocational schools under the Ministry of Education are already in a period of rapid expansion: from 1961-1962 to 1968-1969 the number of trainees rose from 113,300 to 208,500; the number of graduates per year from 5,200 to about 14,000.

By 1975, these vocational schools should have an enrolment of about 500,000 distributed as follows among the major economic sectors: agriculture 15 per cent, industry 50 per cent, the tertiary sector 35 per cent.

Such an increase in the number of trainees implies a corresponding increase in the teaching staff of vocational schools. At present there are 26,000 teachers (19,500 teachers of trade theory and practice); the total number should rise to 35,000.

## Status and functions of vocational teachers

There are three categories of teacher at the public and private schools under the Ministry of Education:

- teachers of general subjects;
- teachers of science and technology (professore di materie tecnico-scientifiche);
- teachers of trade theory and practice (istruttore tecnicopratico).

The first two categories are recruited from among university graduates. Their university studies are mainly theoretical and the practical work undertaken by science and technology students is related to experiments in theoretical research. They do not receive any specialised pedagogical training at the university; if they wish to teach they must pass a special examination for teaching qualifications (esame di abilitazione all'insegnamento) following their first level university degree (laurea universitaria).

Teachers of trade theory and practice are normally qualified technicians (perito) who have been trained at technical secondary school (istituto tecnico). They are not required to hold any additional certificate or qualification authorising them to teach.

Responsibility for each technical or vocational subject taught is held by a university trained teacher. He gives classroom instruction only and is assisted by an instructor who gives lessons in, for example, applied technology, trade theory, laboratory techniques and workshop practice. This dual responsibility often presents a problem: the educational backgrounds of the teacher and the instructor are very different and it is consequently difficult to ensure continuity and harmony in the instruction.

Efforts are being made to overcome this difficulty through appropriate upgrading and updating courses for teachers, both at the university level and at the level of practical/technical instruction: in both cases the criterion of the unity of instruction is kept in mind by having the teachers and instructors study the same subjects, each subject being approached first under its technical and scientific aspects, and then under its practical aspects in connection with exercises carried out in adequately equipped school laboratories and workshops.

The progressive industrialisation of the country and the constant demand for more and more highly skilled craftsmen have brought about a change of attitude towards vocational training over the past few years. It is no longer considered a minor and inferior branch of education, but an important source of earning power and a way to higher social status. In consequence, the social status of the vocational teacher and instructor has also risen and the university-trained teachers of general subjects, science and technology in vocational schools now rank with category A teachers (general secondary education).

A more marked change has occurred in the status of the teacher/ instructor of trade theory and practice. Formerly considered merely a worker, he is now recognised as a teacher and his legal and administrative status is approaching that of the teacher at a general junior secondary school (scuola media)(category B).

## Administration

Public education, including vocational and technical education, is the responsibility of the Ministry of Education. The National Pedagogical Centre for Vocational and Technical Education which has been set up as a special agency by the Ministry of Education may initiate training action on its own account. It may also act in collaboration with public authorities, semi-public bodies and various national and international agencies, such as the Ministry of Education, the Committee of Ministers for Southern Italy (Comitato dei Ministri per il Mezzogiorno), the Agency for the Development of Southern Italy and the National Association for the Prevention of Accidents (Ente Nazionale Prevenzione Infortuni — ENPI).

The two instructor training centres (CNFI) set up initially by the Ministry of Labour are now each managed by quasi-public bodies. The centre at Genova is run by the Institute for Industrial Reconstruction (Istituto per la ricostruzione industriale — IRI) and the centre at Napoli by the National Institute for Training Industrial Workers (Istituto nazionale per l'addestramento e il perfezionamento dei lavoratori dell' industria — INAPLI).

Aims and methods

(1) National Pedagogical Centre for Vocational and Technical Education

The courses run by the Centre group together teachers of the same subject or trade. They are designed to improve the quality of teaching by improving the teachers' technical competence, initiating them into modern teaching methods and giving them instruction in the principles of pedagogics and psychology and supervised teaching practice.

Methods used include classroom lectures followed by discussion; laboratory work to accustom the students to handling demonstration equipment and measuring instruments and to conducting experiments before a class; group activities and seminars; trial lessons in which new methods are used experimentally and which are followed by criticism and discussion.

(2) National Instructor Training Centres - CNFI

Instructor training at the CNFI runs parallel to the instruction given to trainees at the training centres for workers attached to the particular CNFI. It is essentially practical. Students are initiated gradually into all aspects of the instructor's job. They prepare or adapt a lesson according to a detailed analysis of steps (or units) in a job and prepare or select carefully graduated exercises (unit exercises). They try the lessons out on a group of fellow students and give lessons to trainees at the attached centre. Active teaching methods are used. Constructive criticism and group discussion are encouraged. Students are associated in all the steps of preparing or adapting the basic didactic material and unit exercises.

## Students

Courses organised by the National Pedagogical Centre are intended for teachers who are already employed at technical or vocational schools. They are consequently fully qualified technically and have already had some teaching experience.

Courses organised at the CNFI are open to persons between 25 and 40 years of age who are fully qualified in the trade or specialisation they wish to teach, have completed at least general junior secondary school or the equivalent, are medically fit and are otherwise generally suitable for teaching.

## Courses

### (1) Initial training

Training at the CNFI at Napoli begins with an introductory 2-week period (observation, discussions, lectures, establishment of basic principles and explanation of special teaching methods). It is then divided into 2 parts; further technical training (workshop practice, trade theory, drawing technology, mathematics, Italian, safety measures and industrial hygiene) and pedagogical training. Except for training in safety and industrial hygiene, which is given by instructors from the ENPI, all these subjects are taught by the chief instructor.

Practical pedagogical training is given in three stages:

- learning how to prepare a lesson according to the unit exercise system practised at the centre;
- trying out the lesson on fellow students under the supervision of the chief instructor; fellow students criticise the lesson; the chief instructor sums up and, if necessary, gives the lesson again as a model;
- giving the lesson to a "live" class of trainees at the attached centre in front of their regular instructor.

The student goes gradually through the whole process until he can see the trainees put his instruction into effect and can note and assess the results of his teaching.

Duration of training: 22 weeks.

The same type of programme is followed at the metal trades CNFI at Genova. The major part of the time is devoted to pedagogical training and the remainder to further technical training. The weekly timetable is as follows:

| | Hours per week |
|---|---|
| Pedagogical training | |
| Lessons and workshop demonstrations | 26 |
| Study of instruction sheets | 8 |
| Discussion of teaching techniques | 1 |
| Further technical training | |
| Drawing of mechanical parts and equipment | 6 |
| General technology | 2 |
| Workshop mathematics | 2 |
| Hygiene and accident prevention | 1 |

In addition 2 hours are devoted each week to general subjects.

Duration of training: 22 weeks.

(2) Further training

National Pedagogical Centre for Vocational and Technical Education

The courses organised by the National Pedagogical Centre are designed to give advanced technical and pedagogical training to teachers and instructors in public technical and vocational schools. They bring these teachers and instructors up to date on technical developments (new equipment and instruments, new production methods), and give them basic instruction in teaching methods, lesson planning, teaching aids, elements of pedagogics and psychology, etc. Theoretical classroom lessons are supplemented by laboratory work, discussions, practical experiments, practice teaching, group activities and seminars, visits to undertakings and research centres, etc. At the end of the course the students are rated on their performance.

Duration of training: 2 months.

Longer courses of 10 months have been organised for teachers of technology and draughting and teachers of trade theory and practice for the metal trades (industria meccanica).

From time to time the National Pedagogical Centre also runs shorter updating courses (1 to 4 weeks) in specific trades, such as electricity, metal trades, general mechanics, mechanical drawing, agricultural machinery, horticulture and fruit growing. These courses are usually organised as needed for a particular group of teaching staff (e.g. vocational school principals, teachers of science and technology, teachers of trade theory and practice), for the whole teaching staff of a given vocational school or institute, or for a given region. Some of the courses are residential.

National Instructor Training Centres — CNFI

The CNFI provide a follow-up service for instructors who have taken the CNFI courses. During their CNFI training, they have been initiated into a special system of training comprising graduated lessons and exercises which can be adapted or grouped to meet the needs of different categories and levels of trainee. They take away with them a set of the Centre's technical/pedagogical documentation relating to the trade they are going to teach. The Centre remains in touch with them, keeps them up to date on new developments and advises on adaptations which should be made in the training syllabus.

Financial assistance for students

Students undergoing training at the CNFI at Genova and Napoli receive a monthly salary plus various allowances as appropriate, such as grants for married trainees and for those who have to live away from home. Successful students receive a cash bonus on completion of the course.

Research

The National Pedagogical Centre for Vocational and Technical Education has wide terms of reference in the educational field.

Its purpose is to initiate and encourage pedagogical and didactic research on the subjects taught in vocational and technical schools; to organise refresher courses and further training for vocational teachers; to inquire into experiments and experience of similar institutions abroad and disseminate information on them through courses, lectures and publications; to investigate methods and means for improving both the instruction given in vocational schools and their organisation, especially as regards curricula, time-tables, discipline, selection of trainees and examinations; to organise or co-operate in research projects concerning the psychology of adolescents (14-19 years); to maintain contact with scientific and research associations and employers' and workers' organisations so as to co-ordinate school and vocational and technical education activities with the needs of the economy.

## Future plans

The report of the Committee of Inquiry has shown clearly, among other things, the need for giving technical and vocational teachers a more realistic training and preparation for their job than has to date been customary.

It will not be possible to meet this need until two conditions have been met: on the one hand when the system of vocational teacher training colleges (following the example of the agricultural teacher training college in Latina) is extended within the framework of the school system; on the other hand and above all — and this applies to all secondary school teachers, not only to those in technical and vocational schools — when the bill for university reform which is at present before parliament has been approved. This bill envisages, among other things, the possibility of establishing university departments of pedagogics for preparing candidates for teaching qualifications.

It is likely that new methods will be tried out too or that measures or agencies will be created within the next few years in the general endeavour to train the large numbers of vocational and technical teachers who will be required for training the workers needed for the future industrial development of the country.

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In the Netherlands the training of skilled workers and craftsmen is organised in two main ways: through full-time training in a vocational or technical school followed by 2 years of apprenticeship; 4 years of apprenticeship. In both cases the apprenticeship includes courses of related theoretical instruction in addition to training on the job. It begins at the age of 13 or later. Vocational teachers are recruited from among skilled workers and technicians who, through a phased series of evening courses, qualify for teaching practical work and theoretical subjects related to their trade. Full-time day courses are also available for part of the training programme. Final qualification as a teacher is obtained by passing an official examination.

Prepared on the basis of information supplied by the Inspector of Technical Teacher Training, Netherlands Ministry of Education and Sciences

1969

Background

In the Netherlands most skilled workers and craftsmen acquire their qualifications through a system of combined school-based vocational or technical education followed by in-plant apprenticeship. There are two main variations:

(1) 6 years' primary schooling (ages 7 to 12),

+ 3 or 4 years' full-time study at a vocational school (lagere technische school - LTS), where the pupils receive both general education and instruction in vocational subjects,

+ 2 years' apprenticeship in an undertaking (one year of basic training followed by a year of specialisation);

(2) 6 years' primary schooling, as above,

+ 2 years' post-primary education in the general education stream,

+ 4 years' apprenticeship (some trades require only 3 years) in an undertaking: 2 years' basic training + 2 years' specialisation (some trades require only 1 year of specialisation).

In both cases the in-plant apprenticeship is accompanied by compulsory part-time courses of general education and related theoretical instruction. These courses are usually organised on a day-release basis (one day a week), but they are still sometimes arranged in the evenings. In all cases the training is terminated by a compulsory trade examination.

The vocational and technical education system also comprises a number of schools at junior and senior secondary level ("middelbare technische school - MTS" and "hogere technische school - HTS"), which train to technician and higher technician levels respectively, and a technical university (technische hogeschool - TH).

There are, therefore, in all, three types of institution providing vocational or technical education below university level: vocational schools (LTS), technical schools at junior secondary level (MTS) and technical colleges or technical secondary schools (HTS). Similarly, there are three grades of vocational or technical certificate corresponding to each type of institution: grade 3 - LTS, grade 2 - MTS, grade 1 - HTS.

## Development of vocational teacher training

Until the mid-1930s preparation for government examinations for teachers was a matter for private initiative and individual study. In 1934, however, representatives of organisations of technical and vocational teachers and of the boards of technical schools, together with other interested independent persons, founded an association for promoting the training of vocational teachers - the Netherlands Institute for the Training of Teachers for Industrial Education (Nederlands Instituut voor Opleiding van Leerkrachten bij het Nijverheidsonderwijs). The Institute was approved by royal warrant in 1935. Two years later government funds were obtained for running five teacher training courses at different places throughout the country.

At about the same time, and also as a result of private initiative, a similar institution was set up in Rotterdam - the Rotterdam Association for the Training of Teachers for Industrial Education (Rotterdams Genootschap tot Opleiding van Leerkrachten bij het Nijverheidsonderwijs). The two associations worked in close co-operation.

In 1940 eight courses were run for vocational teachers (the number in 1950 was eleven). They were administered by the associations and subsidised by the government.

The two associations amalgamated in 1953 to form the Netherlands Association for the Training of Teachers for Industrial Education

(Nederlands Genootschap tot Opleiding van Leerkrachten voor het Nijverheidsonderwijs).

Status of vocational teachers

There are four categories of teacher in the vocational and technical education system:

- teachers of general education subjects;
- teachers of mathematics and the sciences;
- teachers of practical subjects (workshop practice);
- teachers of technical subjects (trade theory) and draughting.

Teachers of practical subjects mainly give practical trade instruction, but they also teach trade-related subjects such as materials and tools, and may qualify to teach theoretical subjects related to their trade if they undertake further study and training for two years.

The present text does not deal with the teachers belonging to the first two categories of vocational technical school teacher, since their training is the same as that given to corresponding levels of primary school and secondary school teachers.

The status and conditions of employment of teachers employed in vocational and technical schools are substantially equivalent to those of teaching staff of comparable level in general education schools. The table indicates the minimum and maximum salaries of teachers and directors at vocational schools (LTS).

| | Guilders per month |
|---|---|
| Teacher | 865 - 1,959 |
| Director | 1,307 - 2,511 |

Salaries vary according to the teacher's seniority, the number of subjects in which he is qualified to teach and, for directors, the size of the school. All vocational school teachers are entitled to annual leave of 62 working days.

Quantitative requirements

On 1 March 1967 there were 14,665 teachers employed in vocational and technical schools for boys: 11,962 at the first (LTS) level and 2,703 at the junior and senior secondary levels. A breakdown of this total teaching staff by category of teacher gives the following picture:

| | Per cent |
|---|---|
| teachers of general education subjects | 30 |
| teachers of mathematics and the sciences | 10 |
| teachers of practical subjects (workshop practice) | 40 |
| teachers of technical subjects (trade theory) and draughting | 20 |

Thus, taken together, the teachers of trade theory and workshop practice make up 60 per cent of the entire teaching staff in vocational and technical education for boys below university level and represent a total teaching strength of some 8,800 teachers and instructors.

These figures have been supplied by the Central Bureau of Statistics. They relate only to the teaching staffs of industrial vocational schools, special trade schools and technical secondary schools (junior and senior levels) for boys. They do not include teachers and instructors employed at agricultural schools and colleges or at rural and urban domestic science schools for girls.

Administration

In general, all vocational and technical education and training given within the school system, including vocational and technical teacher training but excluding agricultural training, comes under the Ministry of Education and Sciences (Ministerie van Onderwijs en Wetenschappen). Agricultural training is the responsibility of the Ministry for Agriculture and Fisheries (Ministerie van Landbouw en Visserij).

The actual courses for vocational teacher training are both organised and supervised by the Netherlands Association for the Training of Teachers for Industrial Education. Today there are sixteen teacher training schools or centres providing part-time courses in evening classes, four giving part-time day courses and one providing courses on a full-time basis.

The examinations for these courses are controlled by the Ministry of Education and Sciences.

Students

Prospective vocational teachers must prove they have achieved an adequate standard of general education. This means that they should normally hold one of the following: a vocational school certificate, a junior secondary school certificate, a technical secondary school certificate, or a certificate for unconditional admission to the fourth form of one of the general secondary schools.

Failing possession of one of the above, a potential vocational teacher may take a special two-year evening course to make up any educational deficiencies and pass an examination for the "certificate of sufficient general education for industrial education". Such courses are organised expressly for the purpose at various technical schools on behalf of the

Netherlands Association for the Training of Teachers for Industrial Education.

Teachers of practical subjects are usually recruited from among skilled workers, graduates of vocational schools (LTS), who have normally completed apprentice training. At the end of December 1967 about one-third of all student teachers in vocational education were training to become teachers of practical subjects. The currently popular trade specialisations for this group were, in descending order of preference: fitting/machining, carpentry, electrical engineering, motor mechanics, welding, forging and sheetmetal work, and painting. Instrument and toolmaking, bricklaying, cabinetwork and the printing trades were low on the list (each had less than 5 per cent participation).

Teachers of technical subjects (trade theory) are recruited partly from among skilled workers and partly from among students of technical secondary schools or schools of general post-primary education. The most popular fields for student teachers of technical subjects in 1967 were: mathematics, physics and general mechanics followed, in order, by engineering, electricity/electronics and building technology.

Given their varied occupational backgrounds, educational qualifications and experience, student teachers in vocational and technical education may range in age from 18 to 45 years.

### Aims and methods

The vocational teacher instructs adolescents, aged 13 years and over, who are full-time pupils at the LTS, as well as apprentices in industry. To the former he teaches both the theory and practice of his trade, to the latter he gives part-time related theoretical instruction. Vocational teacher training, therefore, has three main aims: to give the teacher a good grounding in the general theory and practice of teaching, to teach him the special pedagogical/didactic aspects relevant to his own particular trade, and to raise his level of competence in his specialisation.

The instruction is normally given to evening classes — usually 12 lessons per week — spread over a 6-year period. It is divided into three distinct phases: preparatory training, technical training, pedagogical training (see diagram page 8). Exceptions to the evening class system are part-time and full-time day courses run by some centres as alternatives to the evening classes for the pedagogical phase and for part of the technical training phase respectively. Student teachers taking the part-time day courses are appointed as assistant teachers in vocational schools near their teacher training centre. They attend seminars, discussion sessions and formal lessons at the centre for 2 days a week. During their service at the school they are visited regularly by staff teachers from the centre and their practice teaching is supervised. There is close co-operation between the training centre staff and the headmasters and permanent teachers of the technical schools which employ the assistant teachers.

Student teachers studying in evening courses are usually employed full-time in their trade or specialisation.

Courses

The training given to teachers of practical subjects (workshop practice) and that given to technical teachers (trade theory) for the LTS are virtually identical and follow the pattern outlined below.

1. Preparatory training (Voorbereidende lerarenopleiding — VL)
   - Course common to all student teachers (practical subjects and trade theory).
   - Duration: 2 years (12 lessons per week, each lasting 50 minutes).
   - Purpose: to raise the student teacher's level of general education, especially in mathematics and science.

## Diagram of vocational teacher training programme

Examination

Examination

Pedagogical training
1 year
evening course

Pedagogical training
1 year
part-time day course

Examination

Examination

Technical
training

Technical training
1 year
full-time day course

3 years

evening course

Preparatory
training

2 years

evening course

2. Technical training (Lerarenopleiding I — LO I)

- Course introduces differentiation between students according to occupational specialisation.
- Duration: 3 years in evening classes (12 lessons per week).

First year: two main occupational groups:

(a) metal trades (fitting/machining, sheetmetal work, welding, mechanical engineering, motor mechanics, electrical engineering, etc.);

(b) building and related trades (carpentry, masonry, painting, cabinetwork, etc.).

Second year }
Third year } Instruction is adapted to the specific technical aspects of each student's occupational field.

As an alternative to these 2 years of part-time specialised technical courses, the teacher training centre in Rotterdam offers a full-time day course which combines in a single year the instruction provided in 2 years of evening classes at the other centres. The course is run on a residential basis. It comprises 34 lessons per week and the syllabus pays considerable attention to social and cultural aspects of teacher training. As the number of places at the centre is limited to 70 per year, admission to the courses is based on a competitive entrance examination.

The training is terminated, in each case, by a government examination.

3. Pedagogical training (Lerarenopleiding II — LO II)

This phase is open to student teachers who have passed the government examination terminating the technical training phase.

- Course common to all student teachers.
- Duration: one year, whether taken in evening classes or in part-time day courses.

Student teachers taking the evening courses have 10 hours of classes per week while being employed as full-time teachers at a vocational school during the day.

Those taking the part-time day course spend 2 days (16 lessons) per week at the teacher training centre and work as assistant teachers at a vocational school for the remainder of the week (3 days). These daytime courses are available at Amsterdam, Rotterdam, Tilburg and Utrecht.

## Examinations

There are two steps in the vocational teacher examination structure:

(1) an examination at the end of the technical phase of the training programme; and

(2) a final examination on completion of the pedagogical phase.

The former is a government examination organised by the Ministry of Education. To be eligible to sit for it the candidate must have completed the prescribed course of technical training (whether on the 3-year evening course basis or the combined evening and full-time day classes), and prove that he has had at least 4 years' practical work experience in the trade he intends to teach (provided that this experience shall have been acquired after 1 January of the year in which he reached the age of 17).

The pedagogical examination is organised by the school or centre providing the training. It gives the student teacher final recognition as a fully qualified vocational teacher. One or more members of the examining board are appointed by the Ministry of Education.

Further training

There is an increasing demand for further training for vocational teachers to help them keep abreast of the continuing development of technology and production techniques in industry and also to improve their teaching proficiency.

Consequently, numerous special courses are organised in both pedagogical and technical subjects - new materials, measuring methods, electronics, the organisation and management of vocational and technical schools, teaching techniques, visual aids, etc.

Financial assistance for students

Tuition at the evening classes of the Netherlands Association for the Training of Teachers for Industrial Education costs 120 guilders per year. There is, in addition, a 10 guilder registration fee.

If the student teacher has to commute any distance to reach the closest Association school, his travel expenses in excess of 2 guilders per week are reimbursed.

Textbooks are paid for by the student teacher. In exceptional instances, however, financial help can be given towards their purchase.

Student teachers doing their technical training at the full-time residential day school in Rotterdam receive free tuition, board and lodging. They can secure interest-free loans to be reimbursed within five years. Repayment of the loan may be waived if the teacher, after completing his training, stays on as a teacher at a recognised school for five years and gives the prescribed number of lessons per week.

Student teachers doing the one year of pedagogical training in daytime classes instead of at night, are paid at a special rate for their hours of teaching at the vocational or technical school to which they are appointed as assistant teachers.

## Staffing

With the exception of those teaching workshop practice, all the teaching staff must be university graduates. No other special qualifications are required of them.

Teachers of workshop practice must be qualified teachers who have acquired long experience teaching in vocational schools and technical schools at junior secondary level.

## Alternative routes to vocational teacher qualifications

For a number of subjects, persons may be recognised as vocational teachers without having followed the training outlined above. In the main this applies to graduates of technical colleges (hogere technische school - HTS) and graduate engineers, subject to the provisions outlined below.

1. Graduates of technical colleges may be recognised as qualified to teach in vocational schools and technical schools at junior secondary level, provided that:
   (i) after graduating from the technical college they have had at least 3 years' practical experience in their trade specialisation; and
   (ii) they have passed the examination for the pedagogical certificate for industrial education.
2. Graduate engineers may be recognised as qualified vocational teachers (mainly in technical colleges):
   (i) immediately after graduating, in which case their qualification to teach is restricted to mathematics and the exact sciences; or

(ii) after having acquired at least 3 years' practical experience in their specialisation, in which case they are recognised as fully qualified teachers of technical subjects (trade theory).

Future development

The coming into force on 1 August 1968 of the Act on post-primary education marked the beginning of a new trend in the educational field in the Netherlands. One of the main purposes of the Act was to provide a single, coherent but flexible structure to the educational system, with possibilities for lateral as well as vertical transfer within the system, not only between actual schools and institutions, but also between streams of education and training.

The Act has provided the framework. Details of its practical application have still, in many cases, to be worked out. The whole post-primary education structure consists in the main of three parallel streams: a stream preparing for university entrance, one for general post-primary education and one for vocational training. Technical schools and colleges, and the various teacher training schools and colleges are considered to form part of vocational training.

A government advisory commission has been set up to study various aspects of teacher training, particularly as regards the certificates to be established, the structure and content of teacher training and the examination requirements and standards to be set up, and to recommend modifications where necessary. It is intended, among other things, that the present government examinations at the end of the technical phase of the teacher training programme should be replaced by an examination set by the schools and organised along lines similar to the present final pedagogical examination, with persons appointed by the government to sit on the examining boards. A number of special sub-committees are to be set up to assist the advisory commission in its work.

## EXAMPLES OF SYLLABI FOR THE THREE PHASES OF VOCATIONAL TEACHER TRAINING

### 1. Preparatory training

Two-year course taken by all student teachers.

| | Table of weekly lessons (50 minutes) | |
|---|---|---|
| | 1st year | 2nd year |
| Algebra | 1 | 1 |
| Geometry | 1 | - |
| Goniometry (measurement of angles) | 1 | 1 |
| Solid geometry | 1 | 1 |
| Physics | 1 | 1 |
| Chemistry | 1 | 1 |
| General technology | 1 | 2 |
| Applied mechanics | 1 | 1 |
| Dutch | 2 | 2 |
| English | 1 | 1 |
| Civics | 1 | 1 |
| | 12 | 12 |

## 2. Technical training

The following table gives, as an example, the curriculum for the metal section (fitting and machining).

Table of weekly lessons (50 minutes)

| | 1st year | 2nd year | 3rd year |
|---|---|---|---|
| Dutch | 2 | - | - |
| Safety regulations | 1 | - | - |
| Electricity | 1 | - | - |
| Materials | 1 | 2 | 1 |
| Tools and machinery | 1 | 2 | 1 |
| Drawing | 2 | 3 | - |
| Sketching | 1 | 1 | - |
| Internal combustion engines | 1 | - | - |
| Technology | 2 | - | - |
| Workshop practice | - | 4 | 8 |
| Workshop organisation and planning | - | - | 1 |
| Theory of production | - | - | 1 |
| | 12 | 12 | 12 |

## 3. Pedagogical training

One-year course taken by all student teachers.

| | Table of weekly lessons (50 minutes) |
|---|---|
| Dutch | 1 |
| Pedagogical subjects (including pedagogics, psychology and didactics) | 5 |
| Teaching techniques and visual aids | 3 |
| Education Act: organisation of vocational education | 1 |
| | 10 |

In addition, the student teacher must put in at least 40 hours of practice teaching, in day or evening schools, under the guidance of the staff teachers of the teacher training course.

CIRF

# Training of Vocational Teachers

NORWAY

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Vocational training in Norway may be acquired either through practical training on the job in apprenticeship combined with related theoretical instruction in school, or in full-time courses in a school. It follows the 9-year compulsory schooling period which is now being generally introduced. Vocational teachers usually instruct both the theory and the practice of their trade. They are normally recruited as skilled workers or technicians with appropriate industrial experience. The teacher training courses consequently concentrate on pedagogical and other aspects of the profession such as industrial psychology and physiology, school administration, supervision.

Prepared on the basis of information supplied by the
Ministry of Church and Education

1969

## Background

Vocational training in Norway may be acquired in full-time training in school, or in an apprenticeship or through a combination of the two methods. It follows the 9-year compulsory schooling period now being generally introduced.

The 9-year common basic school (folkeskole) covers two periods: 6 years of junior primary school (barneskole) followed by a 3-year period (ungdomskole) in a general education or a practical prevocational stream. In school districts which have already introduced the 9-year school system the minimum school leaving age is 16. In other districts the earlier regulations still apply under which the compulsory schooling period is 7 years and the school-leaving age is 14. It is planned that compulsory 9-year schooling will be established in all districts by the early 1970s.

The vocational training system has a network of some 105 vocational "workshop" schools (verkstedskole) which provide training for about 50 recognised trades or other occupations. New trades and occupations are continually being introduced into the system; in parallel some handicraft or artisan occupations are declining or disappearing.

Vocational schools offer three lines of full-time training for skill qualification: a 1-year course of prevocational training; a 2-year course of trade training which, followed by practical experience in industry, leads to skilled-worker level qualifications; and, in cases where apprentice training in an undertaking is either impossible or very difficult to arrange, a 3-year course which leads to full qualification as a skilled worker. The syllabi of the courses are fairly evenly divided between workshop practice and related theoretical instruction.

The normal period of apprenticeship is 3 to 4 years. It consists of practical training on the job in an undertaking and classes of related theoretical instruction provided by a small number of apprentice schools (laerlingskole) for both artisan and industrial apprentices. Related instruction is given by way of day release for 8 hours on one day a week, in evening classes, or in block release day courses lasting 8 weeks. This last arrangement is used only for certain trades for which some supplementary practical training in a school workshop is considered necessary in addition to related theoretical instruction.

Qualifications at technician level are acquired either by full-time attendance at a technical college (teknisk skole) or, in the case of young workers who have completed compulsory schooling and had some experience of practical work, by taking a 2-year course at a technical trade school (teknisk fagskole). The course at technical college is of 2 or 3 years' duration and offers several streams for young people who have completed the 9-year school course or the general junior secondary school (realskole) course. One-year courses at a junior technical school (elementaertekniske skole) and part-time courses provide some further technical and/or administrative training for skilled workers and artisans. Technical trade schools may be administered in common with a technical school, a workshop school or a maritime school.

### Development of vocational teacher training

The existing vocational and technical education system in Norway has largely been built up during the period since 1945. Before then schools for this purpose were few and scattered.

During the early part of the period 1945-1970 there was a general shortage of teaching staff for general subjects, trade theory and technology as well as for practical workshop instruction.

In 1945 the Council for Vocational Training (Yrkesopplaeringsrådet) requested the Ministry of Church and Education to set up a separate training school for vocational teachers. The Ministry submitted a proposal to this effect to the 1946-1947 session of Parliament. The proposal was approved and the State Vocational Teacher Training College (Statens Yrkeslaererskole) was established in 1947 to provide pedagogical training for vocational instructors who were now in principle to give theoretical as well as practical instruction. The first course began in the autumn of 1947.

The capacity of the State Vocational Teacher Training College proved inadequate to meet the country's rapidly expanding needs and, in 1959, the Ministry appointed a planning committee to investigate how vocational teacher training could be expanded to keep pace with the considerable growth of the vocational school system. The Committee recommended the institution of part-time pedagogical training for vocational teachers, to be given in summer courses, correspondence courses and weekend seminars. A State pedagogical course for vocational school teachers (Statens laererkurs for verkstedskolen) was initiated in 1960. Since January 1967 these two institutions have been combined into a Pedagogical College for Vocational Teachers (Pedagogisk seminar for yrkeslaerere).

In addition, a number of refresher and other further training courses for vocational teachers have been arranged in co-operation with the State Technological Institute (Statens Teknologiske Institutt).

Qualification requirements for teachers were consolidated and laid down by law on 16 June 1961. Further regulations were introduced by the Ministry of Church and Education in July 1963. During the last few years a marked improvement in the technological and technical skills and knowledge of new teachers has taken place.

## Status of vocational teachers

The law of 16 June 1961 concerning training qualifications for teachers applies to all schools under the administration of the Ministry of Church and Education, except for maritime schools. As a result, teachers in vocational schools have the same status as other teachers within the main school system in Norway according to their individual qualifications.

For a vocational trade subjects teacher to have equivalent status with a teacher at one level of the general school system, for instance, he must have:

(a) at least 9 years of general school,
(b) passed his trade test (3-4 years apprenticeship),
(c) 1-2 years of technical or business training,
(d) at least 2 years of practical experience after passing his trade test, and
(e) completed a 6-month course of pedagogical training.

For equivalence at another, higher level he would need to:

(a) have graduated from a technical college,
(b) have at least 2 years of practical industrial experience, and
(c) have completed a 6-month course of pedagogical training.

Increasing emphasis is being placed on efforts to select teachers of trade subjects who have broad vocational or professional competence.

A teacher of general subjects may be either a technician with 2 to 3 years of technical college background, a holder of a university or technical university degree, or a teacher who has passed the teachers' college (laererskole) examinations qualifying him to teach in primary schools. More recently additional further education is being required of those in the last group.

Further education in technology and technical related subjects or in pedagogics qualifies vocational teachers for higher status under rules similar to those applying to teachers in other schools (adjunkt — a teacher with a first-level university degree; lektor — a teacher with a higher university degree).

Quantitative requirements

In 1968-1969 about 19,000 trainees were following vocational courses of more than 5 months' duration. Most of them were taking the 1-year prevocational course; a smaller number were following a 2-year or a 3-year course. The number of vocational school pupils has more than doubled over the past 5 years. The apprentice schools have about 2,500 trainees. This number is growing smaller year by year because the curriculum of the prevocational course in the vocational (workshop) schools duplicates to a large degree the curriculum of apprentice schools.

In 1968-1969 the vocational schools and the apprentice schools together had 1,770 full-time teachers and 653 part-time teachers.

Since the Pedagogical College for Vocational Teachers was established in 1967, about 980 candidates have passed the College examinations. Some of these graduates have taken up work in institutions other than vocational schools.

Administration

The Ministry of Church and Education is responsible for teacher training for all types of education.

The Ministry is assisted by the State Council for Teacher Training (Laererutdanningsrådet). The Council consists of 11 members, each of whom holds office for 4 years and has been chosen for his special competence in one or other of the different types of school or in related activities (universities and secondary schools, teacher training colleges, pedagogical research, common basic schools, vocational schools, etc.).

The Council generally advises and reports to the Ministry, on its own initiative or at the Ministry's request, on all questions relating to the terms, contents and implementation of the law of 16 June 1961 concerning the training and qualification of teachers. In addition, it supervises the teacher training colleges and teacher training institutions other than universities and secondary schools. It is also responsible, among other things, for arranging teacher training examinations.

## Aims and methods

As a general rule the vocational teacher instructs young persons between the ages of 14 and 18 or 19 in both the theory and the practice of his trade and in draughting. At apprentice schools he teaches related trade technology only. As he has been recruited on the basis of his trade qualifications and scholastic record, his training has to concentrate on the pedagogical/didactic aspects of his functions and on updating and broadening his trade knowledge to take account of new developments and techniques.

The current practice is for the training to be given on a part-time basis (summer courses, correspondence courses, weekend and evening courses) by the Pedagogical College for Vocational Teachers.

## Courses

### (a) The Pedagogical College for Vocational Teachers

At present training is given part-time. It comprises 403 hours of instruction in pedagogical subjects (psychology, pedagogics, school administration, teaching techniques and supervision, teaching practice, etc.), and 44 hours of study visits and examinations.

Details of the syllabus are given in Annex.

(b) Refresher and other further training courses

Short courses for vocational teachers are arranged by the State Technological Institute in collaboration with the Ministry. These courses are concerned mainly with refresher and additional trade training. Courses of longer duration (one year full-time or 3 years part-time) qualify the teacher for higher status.

## Financial assistance for students

Student-teachers attending the part-time courses of the Pedagogical College for Vocational Teachers receive special stipends in addition to their regular salary as teachers. They are also reimbursed some of their travel expenses.

In 1956 the Government introduced a student loans system. The loans are available to student teachers attending the schools and courses referred to above, provided the applicants have the aptitudes and qualifications required for undertaking the training in question.

## Staffing

Full-time teaching staff for the teacher training schools and courses hold a higher level university degree. As a rule they have also had special pedagogical training.

A large number of part-time teachers are employed for giving instruction in special subjects. Their qualifications vary according to the trade or occupation taught.

## Textbooks

Some books are prescribed reading or are used as basic textbooks for the courses of the Pedagogical College for Vocational Teachers. The majority are by Norwegian authors and deal with such subjects as industrial psychology, the psychology of youth, industrial physiology, education and teaching, discussion-leading and the art of leadership. Swedish textbooks also make a substantial contribution to the curriculum.

Future development

The Ministry of Church and Education is at present considering the future form of teacher training in general. A special committee was appointed by the Ministry in 1966 and put forward its main proposals in April 1968. It has, in particular, proposed the conversion of the present part-time training at the Pedagogical Institute for Vocational Teachers into a 1-year full-time course combined with a 15-month period of practical training in school. In addition to this call to strengthen the basic education and pedagogical training of vocational teachers, the proposals are concerned with the conditions of further education and of financial assistance for students.

## PEDAGOGICAL COLLEGE FOR VOCATIONAL TEACHERS: Syllabus

| | Total No. of hours |
|---|---|
| 1. Psychology and pedagogics | 215 |
| General psychology and the psychology of youth (93 hours) | |
| Industrial psychology (6 hours) | |
| History of pedagogics, didactics (116 hours) | |
| 2. Teaching techniques and practice teaching | 168 |
| Teaching practice (49 hours) | |
| Use of audio-visual and other special pedagogical techniques (19 hours) | |
| Discussion techniques, rhetoric (14 hours) | |
| Work in groups, case studies (48 hours) | |
| Hygiene (8 hours) | |
| Industrial physiology, industrial techniques and industrial instruction (30 hours) | |
| 3. School administration | 20 |
| 4. Excursions and study visits | 6 |
| 5. Examinations | 38 |

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Vocational training in Sweden is normally given in full-time courses in public or private vocational schools. It begins at age 16-17, after 9 years of compulsory education. The entire system of education and training is currently in process of revision but the principle of chiefly school-based vocational education and training is to be maintained. Vocational teachers are classified in two broad groups: teachers of trade subjects and teachers of general and technical (theoretical) subjects. They are trained in full-time courses organised in special vocational teacher training institutes and lasting from a few weeks to one school year. Numerous short courses are available for further training and updating.

Prepared on the basis of information supplied
by the Central Board of Education

## Background

Vocational training is promoted and supported by three major interests: the municipalities, industry and commerce and the State. The first two of these take the initiative concerning the training programme itself and its adaptation to the changing needs of the community, while the State for the most part acts as administrative adviser and gives financial support. The Central Board of Education (Skolöverstyrelsen), placed directly under the Ministry of Education, is in charge of all the Swedish school system below university level.

In building up an effective vocational training system Sweden has chosen to concentrate on a school-based rather than an in-plant apprenticeship system. Consequently, vocational training is normally given in full-time courses in public or private vocational schools. It begins at the age of 16-17 after 9 years of compulsory schooling.

There are four main ways of acquiring skill training:

(1) in full-time public vocational schools (yrkesskola) — there is a large network of local and central vocational schools run by local and county government authorities;

(2) in full-time private vocational schools (företagsskola) — most large and middle-sized undertakings maintain their own schools, which are generally run on the same lines as public vocational schools;

(3) in "built-in" vocational schools (inbyggd yrkesskola) — an arrangement whereby an undertaking, or a group of undertakings in a community agrees to provide practical instruction to trainees at the local vocational school, which is thus able to concentrate on providing related theoretical instruction and, in some cases, basic skill training; the trainees remain under the educational supervision of the school and are not considered to be employees of the undertaking;

(4) under apprenticeship contract in the artisan trades (lärlingsutbildning hos hantverksmästare).

Development of vocational teacher training

The need for special training to be given to craftsmen and specialists in commercial subjects employed as teachers of trade subjects was officially recognised in 1949 when a division for vocational teacher training was established within the Royal Board of Vocational Education (Kungl. Överstyrelsen för Yrkesutbildning). The first teacher training courses were organised in Stockholm in 1950: one for teachers of trade subjects (yrkeslärare), who primarily give practical instruction in the workshop but who also give some theoretical instruction, and one for commercial teachers (handelslärare). Similar courses have been run at Göteborg from 1956 and Linköping since 1957; in the spring of 1959 courses were also organised at Umeå and Lund. Growing shortages of qualified technical teachers (lärare i tekniska ämnen) resulted in the Board of Vocational Education initiating special courses for such personnel in 1958.

Earlier, in 1955, the Government decided to set up a Royal Commission to review the whole system of teacher training for both technical and vocational education and training. The report of the Commission, published in 1959, determined the guidelines for the training of teaching staff for all vocational schools and assimilated institutions.

In 1961 it was decided that there should be permanent vocational teacher training institutes at Göteborg, Linköping, Malmö, Stockholm, Sundsvall and Umeå, and that all vocational teacher training should be given at these institutes.

In 1964 the Board of Vocational Education was amalgamated with the new Central Board of Education (Skolöverstyrelsen) which has been given over-all responsibility for the qualification of all teachers, including those employed in technical and vocational education.

## Status and functions of vocational teachers

Within the vocational school system a distinction is made between teachers of trade subjects (yrkeslärare) and teachers of general and technical (theoretical) subjects (lärare i läroämnen). The latter give classroom instruction in, for instance, general science, mathematics. Trade subjects teachers give practical instruction in their trade speciality and, to some extent, theoretical instruction directly related to the trade.

Within the trade subjects teacher category there are four sub-groups:

(1) teachers of industrial and artisan trades (hantverk) occupations;
(2) teachers of domestic science subjects (including home management, child-care, sewing, etc.);
(3) teachers for the paramedical and social service occupations;
(4) teachers of business and commercial occupations (stenography, typing, elementary book-keeping, etc.).

Within the vocational training system there are also posts for teachers of general education subjects and the sciences, but these are primarily for instruction in technology and commercial subjects.

According to his salary group the teacher of trade subjects holds a position somewhere between that of the primary school teachers and the secondary school teacher. The status of the teacher of general and technical (theoretical) subjects is equivalent to that of the secondary school teacher.

## Quantitative requirements

In 1964 the total number of trainees in full-time courses at vocational schools was 75,689 and in part-time courses 97,947. In 1967, as may be seen from the table, the corresponding figures were 80,190 and 109,169 respectively.

| | Full-time courses | Part-time courses | Total |
|---|---|---|---|
| Technical training (for junior technicians) | 7,826 | 14,169 | 21,995 |
| Industrial and artisan trades | 36,305 | 18,372 | 54,677 |
| Office work and commercial occupations | 14,890 | 45,538 | 60,428 |
| Domestic occupations | 9,968 | 27,490 | 37,458 |
| Paramedical and social service occupations | 8,051 | 1,769 | 9,820 |
| Others | 3,150 | 1,831 | 4,981 |
| Total | 80,190 | 109,169 | 189,359 |

Over the same period there has been a considerable expansion in the number of vocational teachers graduating from the various types of teacher training course (cf. table on page 10) — 457 in 1964, 852 in 1968 — but there still remain what are sometimes acute shortages of qualified teachers in various vocational and technical training fields.

## Administration

Administratively, the vocational teacher training institutes come under the supervision of the Central Board of Education (which is responsible for the organisation, supervision and inspection of all teacher training).

## Students

The qualifications required for admission to the various basic vocational teacher training courses are given in Annex I. No minimum or maximum age is laid down for admission to the courses but to be accepted a candidate must be free from any illness or physical handicap which might render them unsuitable for the teaching profession.

## Aims and methods

Since the vocational teacher is recruited on the basis of his trade qualifications, scholastic record and practical experience (cf. Annex I), the training provided at the vocational teacher training institutes concentrates on the pedagogical aspects of his job.

A wide range of methods is employed. Full-time courses at the training institutes use traditional teaching methods: lectures, small class instruction, seminars, private study, and practice teaching under the supervision of experienced teachers. Increasing use is being made of correspondence courses, including correspondence courses which are organised so that the students meet together periodically under a tutor to check on their progress and to have an opportunity to discuss their difficulties and have their questions answered and problems clarified.

## Organisation of training

Most vocational teachers receive their training in one of the institutes established at the six towns already referred to. Some general subjects teachers at vocational schools and institutions and teachers for intermediate and higher technical schools and institutes are trained at a university-level teacher training college (lärarhögskola). Teachers of domestic science and home management (including child-care) occupations, sewing and needlework are trained in specialised colleges. Most paramedical and social service teachers have been trained at the state institute for the advanced training of nurses.

The information given below relates exclusively to the activities of the vocational teacher training institutes as these are responsible for a major part of the initial and further training of teachers for vocational schools and assimilated institutions.

Courses

The following is an outline of the various courses of initial, full-time vocational teacher training run for different types and categories of trade and special technical subjects teacher for vocational schools and assimilated institutions.

1. Teachers of trade subjects (industrial and artisan trades)

Duration of course: 33 weeks.

15 weeks - pedagogical instruction comprising lectures and seminars in psychology and pedagogics, general and special teaching methods school hygiene, supervisory techniques, employment market questions; it includes practice teaching in both practical work and related theoretical instruction;

15 weeks - service as an assistance trade teacher at a vocational school, a common basic school or a retraining centre;

3 weeks - revision.

Courses are given for trade teachers in a number of specialisations, such as various of the metal trades, general and motor mechanics, repair welding, carpentry, telecommunications, electrical installations, heating and sanitary installations.

2. Commercial and secretarial teachers

Duration of course: 15 weeks.

The course covers psychology and pedagogics, general and special teaching methods, school hygiene, supervisory techniques, employment market questions; it includes lectures and exercises in oral presentation and diction, and teaching practice.

## 3. Teachers of business and commercial subjects

Duration of course: 2 semesters.

First semester: mainly further instruction in Swedish, report writing, cost/income analysis, distribution, administration, etc. The instruction is directly related to the occupational field. Other subjects include study methods, pedagogics, general and special teaching methods.

Second semester: practical pedagogical training and teaching practice.

## 4. Teachers of technical subjects

Duration of course: 2 semesters.

First semester: mainly further instruction in mathematics, physics and general technology. The instruction is directly related to the occupational field. Other subjects include study methods, pedagogics, general teaching methods and methods applicable to specific technical subjects.

Second semester: practical pedagogical training and teaching practice.

## 5. Special subjects teachers: administrative and technical aspects of data processing

Duration of course: 2 semesters.

The course covers: applied mathematics, computers, general programming, data storage, programme language, systems, applications of electronic data processing, psychology, pedagogics, methodology; it includes teaching practice, planning training and exercises in programming and systems application.

Teachers of administrative data processing also take classes in administration, information theory and technical English.

6. Teachers of paramedical and social service occupations

Duration of course: 19 weeks.

12 weeks - pedagogical training, including lectures and seminars in psychology, pedagogics, general and special methodology, civics, hygiene; practice teaching and training in oral presentation and diction;

5 weeks - practical training in a vocational school (including teaching practice under supervision, counselling and special studies related to individual subjects);

2 weeks - revision.

7. Teachers of trade subjects in special schools and classes (for children with handicaps or special learning difficulties)

Duration of course: 18 weeks.

The course includes pedagogics, psychology, methodology, counselling, teaching practice and study visits.

8. Training officers and instructors in business and industrial undertakings

Duration of course: 1 - 8 weeks.

These courses are held annually. They include pedagogics, psychology, teaching methods, audio-visual aids and teaching practice. They are organised in collaboration with the various trade associations.

Number of teachers trained in initial courses

As may be seen in the table opposite, there has been a fairly steady upward trend and sometimes a very substantial and consistent increase over the past 12 years in the number of teachers trained in each of the initial courses described above.

| Course No. | 1956 | 1958 | 1960 | 1962 | 1964 | 1966 | 1968 |
|---|---|---|---|---|---|---|---|
| 1 | 74 | 126 | 260 | 246 | 302 | 391 | 336 |
| 2 | 31 | 40 | 69 | 105 | 122 | 76 | 88 |
| 3 | - | - | - | - | - | 98 | 115 |
| 4 | - | 24 | 27 | 28 | 33 | 73 | 105 |
| 5 | - | - | - | - | - | 15 | 36 |
| 6 | - | - | - | - | - | 81 | 46 |
| 7 | - | - | - | - | - | 86 | 126 |
| Total | 105 | 190 | 356 | 379 | 457 | 820 | 852 |

The courses for training officers and instructors in undertakings, offices and other business enterprises have not been included in this table as they usually do not last more than a very few weeks (maximum: 8).

Further training for vocational teachers

Opportunities for further training are available in three forms:

(1) short, full-time courses organised by the Central Board of Education during holiday periods;

(2) part-time courses organised during the school year by bodies other than the Central Board of Education; and

(3) further technical training or updating through periods of practical experience in undertakings.

The courses held during holiday periods are usually organised by the further training department of the teacher training colleges (lärarhögskola) at Göteborg, Linköping, Malmö, Stockholm, Umeå and Uppsala. They are offered in a wide range of subjects such as welding, grinding, measuring, industrial electronics, business economics, typing, industrial safety and general and special (trade related) teaching methods. Most are of one week's duration.

The periods of practical experience in undertakings are organised during term-time. Candidates accepted for such training are granted one month's leave for the purpose, usually on full pay.

Although further training of vocational teachers is voluntary, large numbers participate each year in such courses.

## Certificates

On successful completion of the various initial training courses each student is awarded a certificate which rates him on teaching ability, diligence and aptitude for teaching, and records the actual marks achieved in psychology and pedagogics. A general participation certificate is given for attendance at the shorter (further) training courses.

## Financial assistance for students

Students attending the 33-week course for teachers of trade subjects (industrial and artisan trades), the 15-week course for teachers of commercial occupations and the 19-week course for teachers for paramedical and social service occupations receive about 2,700 S.kr. per month ($519). Travel expenses to and from the place where the training is being given (at the beginning and at the end of the course) are reimbursed. Participants employed as teachers or in a national or municipal educational authority receive full salary or, in certain cases, salary reduced by one-third.

Students attending 2-semester courses for teaching commercial subjects and those training to become technical teachers receive between 2,700 and 3,200 S.kr. per month during their second semester, according to the level of their theoretical training. In some cases allowances are subject to a one-third reduction. No allowances are payable during the first term. Travel expenses to and from the place of training are reimbursed.

Students attending 2-semester courses for training as teachers of data processing receive either their full salary or an allowance of about 3,200 S.kr. per month during training, together with reimbursement of travel expenses to and from the place of training plus subsistance allowance.

Teachers on courses for work in special schools or classes receive full salary during training, together with reimbursement of travel expenses to and from the place of training and a subsistence allowance.

### Staffing

At the head of each vocational teacher training institute is a rector. He is assisted by teachers of psychology and pedagogics, and teaching methods specialists for technical and commercial subjects and for paramedical and social service occupations. In addition to the regular teaching staff, specialists from industry and other branches of the economy are employed. The teaching methods specialists give instruction in their own special subjects, collaborate in supervising the teaching methods guidance given the student teachers and visit them during their teaching practice assignment as assistant teacher or teacher. During this assignment student teachers also receive guidance from the teachers at the school or centre employing them. The latter receive a short (usually one week) training for this purpose.

### Textbooks

Basic textbooks on psychology and pedagogics are used in the teacher training course. Student teachers also have access to the institutes' libraries. Within the framework of the subject "study methods" they are taught how to take notes and use their own notes from lecture and seminars.

The teaching staff of the courses sometimes prepare summaries of their courses for subsequent use by students as texts.

## Evaluation

At the end of each course the student-teachers are given an opportunity to discuss the form and content of their training. The Central Board of Education maintains continuous contact with the institutes to obtain an over-all view of the results achieved by students.

## Future plans

A Bill has been laid before Parliament to combine vocational schools, technical and general secondary schools into a single type of school with effect from 1 June 1971. Within this new type of school vocational training would be reorganised with a view to making basic training common to several related lines of training to be followed by subsequent specialisation training becoming progressively more differentiated. The new vocational curricula will include more general education subjects than at present. The Bill is based on proposals put forward by, among others, the Committee on Vocational Training (Yrkesutbildningsberedningen). The Committee is expected to issue new proposals on the training of vocational teachers in 1970.

### Summary of qualifications and training required by vocational t

| Category of teacher | Theoretical training | Practical experience | Type of pedagogic |
|---|---|---|---|
| 1. Teachers of trade subjects, industrial and artisan trades | Junior secondary school leaving certificate (junior secondary school "folkskola"; experimental comprehensive school "försöksskola"; common basic school "grundskola") | 7 years comprehensive experience in the trade to be taught | 33 weeks |
| 2. Commercial and secretarial teachers | Senior secondary school leaving certificate (commercial section) | 3 years employment in industry or the public services; good work record | 15 weeks |
| 3. Teachers of business and commercial subjects | Senior secondary school leaving certificate (commercial section) | 2 years practical experience; good work record | 2 semesters,<br>includes su<br>further trainin |
| 4. Teachers of technical subjects | Senior secondary school leaving certificate (technical section) | 2 years practical experience; good work record | 2 semesters,<br>includes su<br>further trainin |
| 5. Special subject teachers:<br>(a) administrative aspects of data processing<br>(b) technical aspects of data processing | Degree in commerce or equivalent university training<br>Engineering degree or equivalent university training | 1 year of practical experience with electronic data processing (EDP); good work record | 2 semesters,<br>ther training i |
| 6. Teachers of para-medical and social service occupations | Completed training in para-medical and social service occupations | 2 years practical experience | 19 weeks |
| 7. Teachers of trade subjects in special schools and classes | Teacher training diploma | 3 years of service as a teacher | 18 weeks of fu<br>in pedagogics |

## Summary of qualifications and training required by vocational teachers

| Theoretical training | Practical experience | Type of full-time pedagogical training | Entitlement to teach |
|---|---|---|---|
| Junior secondary school leaving certificate (junior secondary school "folkskola"; experimental comprehensive school "försöksskola"; common basic school "grundskola") | 7 years comprehensive experience in the trade to be taught | 33 weeks | Skilled work and related theoretical instruction at vocational schools, retraining centres and the terminal classes of common basic school |
| Senior secondary school leaving certificate (commercial section) | 3 years employment in industry or the public services; good work record | 15 weeks | Shorthand, typing, office procedures and practical secretarial work at technical secondary schools, common basic schools, general secondary schools, vocational schools and retraining courses |
| Senior secondary school leaving certificate (commercial section) | 2 years practical experience; good work record | 2 semesters, one of which includes subject-oriented further training | Commercial subjects in the higher classes of common basic school |
| Senior secondary school leaving certificate (technical section) | 2 years practical experience; good work record | 2 semesters, one of which includes subject-oriented further training | Technical subjects (mathematics, physics, technical orientation) at common basic school and vocational school |
| Degree in commerce or equivalent university training<br>Engineering degree or equivalent university training | 1 year of practical experience with electronic data processing (EDP); good work record | 2 semesters, including further training in EDP | 1-year post-secondary course in administrative aspects of EDP at vocational school<br>1-year post-secondary course in technical aspects of EDP at vocational school |
| Completed training in paramedical and social service occupations | 2 years practical experience | 19 weeks | Subjects in the field of paramedical and social services at vocational school |
| Teacher training diploma | 3 years of service as a teacher | 18 weeks of further training in pedagogics | Trade subjects in special schools or classes |

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In Switzerland vocational training is normally acquired on the job in apprenticeship combined with compulsory related instruction. Training usually commences at the age of 15 or 16 according to the period of compulsory education in the different cantons, and lasts 3 to 4 years. Vocational teachers are recruited among graduate engineers, technicians, skilled workers and master-craftsmen. With the exception of a 12-month full-time course for teachers of general subjects, pedagogical and advanced skill training for vocational teachers is arranged in part-time courses.

Prepared on the basis of information supplied by the Federal Office for
Industry, Arts and Crafts and Labour, OFIAMT

## Background

Education during compulsory schooling (up to 15 years of age in most cantons) and the implementation of federal legislation on vocational training are the responsibility of the twenty-five cantons or half-cantons in Switzerland. Consequently, the federal law on vocational training of 26 April 1963 sets general standards, leaving the detail of their application to the discretion of the cantonal authorities. However, cantonal regulations must in no way contravene, in fact or by implication, the minimum federal standards.

Under the law, initial vocational training for industry, craft trades, commerce, banking, insurance, the hotel trades and miscellaneous service occupations is normally acquired by training on the job under apprenticeship combined with compulsory day-time related instruction given at vocational schools. Apprenticeship varies in duration according to trade. The minimum is 12 months, but the duration is generally 3 to 4 years. The standards relating to the duration of training and the level and content of related instruction are determined by the Federal Office for Industry, Arts and Crafts and Labour (Office fédéral de l'industrie, des arts et métiers et du travail — OFIAMT).

There are 255 vocational schools giving part-time related instruction to apprentices. In 1968 the smallest vocational school had twenty-one pupils and employed four teachers part-time; the largest (at Zürich) was giving instruction to more than 11,000 pupils and employed about 500 full-time or part-time teachers.

The federal authorities (OFIAMT) draw up model syllabi and set examination standards. The cantons are empowered to fix their own standards in trades or crafts peculiar to their locality.

Some employers, individually or through their associations, have organised complete programmes for training skilled workers. A few large firms have their own full-time apprentice schools in which related instruction and practical training are given by qualified teachers and instructors.

In collaboration with the cantonal authorities in the watchmaking districts, the watch industry has organised its own watchmaking schools which provide full technical training to supervisors, skilled workers and repair and sales personnel. The building trades organise 3-month full-time courses for apprentices, the rest of whose training is acquired on the job.

About 15 per cent of all trainees acquire their skill training by attending full-time vocational schools or schools of decorative arts giving both theoretical instruction and practical training. There are eighteen such schools located throughout the Confederation. Most of them are run by local communities and supervised by the cantonal and federal authorities. They prepare young men and women in only a limited number of occupations (about 12 out of more than 250).

In 1968 new apprenticeship contracts were signed by 30,333 boys and 14,012 girls; the total number serving an apprenticeship was 128,557 (93,800 boys and 34,757 girls). These figures represent 68 per cent of the boys leaving school that year and 32 per cent of the girls.

## Development of vocational teacher training

Since the first federal law of 1930 on vocational training came into force on 1 January 1933, the federal authorities have continuously endeavoured to develop initial and further training for teachers. In 1936, 26 courses were organised in collaboration with the cantons and associations concerned; they were attended by 556 participants. In 1968, 35 initial and further training courses were organised for teachers in vocational (trade and commercial) schools; 884 teachers attended.

Not even in the large cantons, however, has the number of participants in courses of this kind been large enough to justify organisation of courses at cantonal level. Since 1943, it has therefore been necessary for the OFIAMT to organise one-year courses for training full-time teachers of general subjects in vocational schools. By September 1969, 17 such courses had been held, training a total of 255 general subjects teachers.

In 1968, federal expenditure for vocational teacher training amounted to 850,000 Swiss francs (about $197,700).

Status of vocational teachers

There are two categories of vocational teacher:

(a) trade subjects teachers: technical subjects and related trade theory (materials, tools, machines, applied science, applied technology, technical drawing);

(b) general subjects teachers: mother tongue, correspondence, arithmetic, accountancy, civics, political economy.

Teachers in vocational schools do not have uniform status valid throughout the country, since the application of the federal law on vocational training and consequently the organisation of instruction are the responsibility of the cantonal authorities. Nevertheless vocational teachers are generally classified with general subjects teachers employed at junior secondary school level. Teachers in technical secondary schools or commercial secondary schools who have a university degree are sometimes classified in the same category as the teaching staff of general secondary schools.

Quantitative requirements

The number of new apprenticeship contracts increases regularly each year. It has more than doubled in 30 years (21,768 new contracts in 1937; 44,345 in 1968) and, as indicated earlier, the number of apprenticeships being served at the end of 1968 was 128,557. This increase has led to a considerable increase in the number of vocational school classes and the larger schools therefore endeavour to employ as many full-time teachers as possible to replace those teaching on a part-time basis.

## Administration

Implementation of the federal law on vocational training is ensured by the cantonal authorities, under the general supervision of the Confederation, and in particular of the OFIAMT. It is the Confederation's responsibility to draw up both regulations covering apprenticeship and final apprenticeship examinations, and syllabi for the vocational schools; to supervise the higher trade examinations for master-craftsman level (maîtrise) organised by the trade associations; to allocate the federal subsidies voted each year by parliament for schools and vocational courses; and to initiate any legal measures which will encourage and promote vocational training.

The federal law stipulates that the instruction provided by vocational schools must be given by teachers who are both technically and pedagogically competent and the federal authorities are responsible in particular for the training of vocational teachers. They are required to provide such training in agreement with the cantons and the trade associations concerned. The Confederation is also required to take any measures necessary for the improvement of pedagogical and technical skills in these teachers. The law requires the federal authorities to consult the cantons, trade associations and vocational training associations, in particular on the establishment of syllabi for teacher training courses.

The cantons may, on their own account and in agreement with the federal authorities, organise courses of initial and further training for vocational teachers as necessary. They are empowered to make attendance at initial and further training courses compulsory.

These provisions ensure that vocational teacher training is carried on systematically throughout the country.

## Students

Trade subjects teachers are normally recruited among graduate engineers, higher technicians, master-craftsmen and other technically qualified personnel. Very few have had any training in pedagogics before they begin to teach.

General subjects teachers at vocational schools are recruited from among primary or secondary school teachers or university graduates.

Even in the larger schools, which have a permanent staff of full-time teachers, much of the instruction for apprentices is given by part-time teachers whose main employment is in industry or craft occupations.

## Aims and methods

Vocational teachers are already fully qualified in their occupation when they are recruited. The aim of the teacher training courses is therefore to give them a basic knowledge of pedagogics and an opportunity of practice teaching. It is generally considered that the large proportion of part-time vocational teachers employed lessens the risk that the instruction will lose touch with occupational practice and makes it easier for the schools to keep abreast of technical developments.

As a rule, the introductory courses in pedagogics are given in evening classes. They are usually organised on a cantonal or local level. Traditional classroom teaching methods are used.

Induction and further training courses for trade subjects teachers include: full-time instruction in their subject and in the problems of methodology and pedagogics involved; lectures followed by discussions; model lessons; the use of modern teaching aids and equipment; visits to undertakings; and practice teaching to classes of apprentices.

Participants are not usually required to take notes, since it is considered that note-taking prevents optimum use of the short time available for training.

Training for newly recruited full-time vocational teachers is organised on a full-time basis. Traditional classroom methods are used for theory. The courses also include some practical workshop training, practice periods in industrial undertakings and practice teaching under experienced teachers.

## Courses

### 1. Initial training

### (a) Trade subjects teachers

Newly recruited teachers and ones with little teaching experience are required to take an introductory course in pedagogics. The course is given part-time and comprises at least 30 hours instruction.

### (b) General subjects teachers

Teachers of general subjects can take a one-year, full-time course averaging about 35 hours of instruction per week. It includes:

- the general principles of education and vocational training (legal bases, methodology, pedagogics, psychology, practice teaching);
- study of the curriculum of each general subject;
- study of the elements of industrial drawing, blue-print reading, technology, applied mathematics and applied sciences applicable to five

major trade groups (mechanics, building trades, woodwork, sheet-metal work, electrical equipment). Practical instruction in a school workshop, and some weeks' experience in industry helps to familiarise them with industrial work, and practice teaching under an experienced teacher gives them insight into the special problems involved in vocational education.

The 12-month course is terminated by a diploma examination giving the right to appointment as a full-time vocational teacher of general subjects. General subjects teachers who come from other branches of education (primary or secondary) or who are university graduates are initiated into the special aspects of vocational education by attending induction and further training courses in general subjects. Each course lasts one to two weeks.

## 2. Further training

The Swiss Vocational Education Association, to which many associations of vocational education teachers are affiliated, and the federal authorities have jointly and severally organised a large number of day courses of further training which are attended each year by some 1,000 teachers belonging to all occupational groups. Their content varies. They may be concerned with the technology of the subject taught, with industrial drawing, or with particularly important aspects of the subject. They also include teaching practice and lessons in pedagogics. The duration of courses is one to two weeks (usually one week).

Further training courses are also arranged for the general subjects teachers. These are usually organised for one or other of the language groups of Switzerland: German, French, Italian. As a rule, the courses are residential; this encourages a fruitful exchange of ideas over meals and in the evenings.

Arrangements are made for full-time teachers to visit workshops and undertakings during vacations so as to enable them to keep in touch with the practical aspects of the subject they teach and to keep abreast of innovations.

Financial assistance for students

Teachers taking part in the initial pedagogical courses or in further training courses for general subjects teachers may receive federal grants provided they are in a difficult financial situation and would be unable to complete their training if they did not receive financial assistance from public authorities, foundations, associations or other bodies. The federal authorities award a grant only if the cantons, communities, associations, foundations, etc. concerned also make a grant for the same purpose.

Such grants may cover all or part of the expenses incurred (including travelling expenses). Loss of salary resulting from attendance at a course may also be compensated, up to a fixed limit.

Staffing

The courses for trade subjects teachers are staffed by specialists (graduate engineers, technicians, master-craftsmen, etc.) in the technical fields covered by the course.

For the full-time initial course for general subjects teachers, recourse is had to specialists in pedagogics and methodology, psychologists (often university staff) and specialists in teaching the various subjects of general education. Since the training programme includes a theoretical and practical introduction to some common basic trades and occupations, use is also made of the services of personnel with experience in the occupations concerned. These are recruited either from industry and the handicraft trades or from technical schools.

Textbooks

The texts of the courses — in full or summarised — are distributed to the participants whenever possible.

For all types of course, use is made of textbooks specially prepared for vocational training, and of collections of drawings etc. The textbooks are based on recommendations made by special committees, and are discussed among the teachers attending further training courses.

Future plans

The Swiss Vocational Education Association and the Swiss Vocational Schools Association have submitted a joint memorandum on the improvement of training for vocational teachers to the OFIAMT. The two associations confirmed the desirability of distinguishing between teachers of general subjects at vocational schools and those teaching trade subjects (this distinction is contrary to the practice in a number of other countries) but emphasised the inadequacy of short (30-hour) courses for training skilled workers to teach trade subjects. To replace these 30-hour courses, they recommended longer courses which would have a more appropriate syllabus and take place in a central institution.

The whole question of reforming vocational teaching training is therefore currently under review. The federal authorities have set up an expert commission to put forward recommendations but this body has not yet completed its work. Details of proposed reforms were therefore not available at the time this monograph was published. It seems certain, however, that the period of training will be extended appreciably for teachers of all categories (teachers of general subjects and teachers of trade subjects, both full-time and part-time).

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Training of workers for industry in the United Kingdom is based on the apprenticeship system entailing up to five years of practical instruction. Related theoretical instruction through further education (FE) is given for almost all occupations. This is provided by a wide range of institutions which organise courses at several levels and in many different fields. Vocational teachers are recruited from almost every level in industry and commerce consistent with the need for academic qualification and experience. In England and Wales teacher-training courses have graduate or equivalent entry requirements and hence are of one year's duration. In Scotland, the training takes the form of a sandwich course, which lasts 16 months and is undertaken by students on an in-service basis.

Prepared on the basis of information supplied by the
Department of Education and Science

## Background

In Britain the practical training of young workers has formerly been a responsibility of industry but is now administered by the various Industrial Training Boards, while the Government accepts responsibility for related theoretical instruction. The Industrial Training Act of 1964 provided for the establishment of these boards whose task is to recommend schemes of training for the various categories of worker within their particular sector of industry. Most sections of industry are now covered by boards and a majority of the workers following recommended programmes of practical training will do so in industry. Some will do so in workshops provided for this purpose at Colleges of Further Education (otherwise known as Technical Colleges). Colleges of Further Education have sole responsibility for providing the related theoretical courses which complement the practical training of young workers, wherever that may be given. This allocation of responsibility for providing practical training and related instruction does not detract from the essential unity of the education and training process.

Approved programmes of training and related theoretical instruction are provided for a wide range of young workers, notably craftsmen, technicians and commercial and clerical workers. Employers are not compelled by law to release young workers for courses of education at colleges, but an incentive to do so is provided by financial grants from the industrial training boards. A firm's annual grant programme will not receive Government approval unless they make it a condition of grant that young workers receiving a substantial amount of training (normally taken as a year or more) shall be released from work for related instruction. Many collective agreements regarding the employment of young workers make a similar provision.

Craft apprentices will have left school at or beyond the statutory minimum leaving age, at present 15. Numbers of future technicians will be drawn from this category. Many technician apprentices will have left school about two years after the minimum leaving age. Most office workers will have left school at one or other of these ages.

The colleges of further education provide a wide variety of courses, both vocational and non-vocational, to meet the needs of industry and commerce and of personal development. Many courses are part-time but the number of block release, sandwich and full-time courses is considerable and grows every year. A number of major colleges have been invited to develop their advanced work to the point where they may be designated Polytechnics. New full-time advanced courses, particularly those for first and post-graduate degrees will tend to be based on these colleges. Teachers in further education are normally required to teach at several levels consistent with their qualifications and experience.

## A. ENGLAND AND WALES

### Development of technical/vocational teacher training

For many years before 1939 short, full-time and part-time courses were provided for technical and commercial teachers by local education authorities, regional advisory councils, and the Board of Education. Only as a result of the comprehensive review of all teacher training, undertaken by a committee in 1942, was sustained thought given to the provision of vocational teacher training. Systematic training for vocational teachers came into effect in 1945 when the Ministry of Education announced provision for the training of vocational teachers under the post-war emergency training scheme. In 1946 the first college specialising in this field — Bolton College of Education (Technical) — opened with an intake of 98 students; three other colleges were opened subsequently, Garnett

College in London in 1946, Huddersfield in 1947 and Wolverhampton in 1961.

The major courses at present being run at the Colleges of Education (Technical) fall into three categories: (a) 1-year full-time pre-service courses for university graduates, or the equivalent; (b) 4-term sandwich courses for existing teachers, either graduates or the equivalent; and (c) 2-year part-time extra-mural in-service courses. During the academic year 1968-1969 there were some 1,200 students attending the 1-year pre-service courses at these four institutions, about 500 students attending sandwich courses and about half that number on extra-mural courses. The Colleges of Education (Technical) also run a number of shorter courses (see below).

Status of the teacher in further education

With approximately equal sums being spent per year on the universities and the colleges in the public sector of FE and bearing in mind the considerable growth in advanced work in the colleges, it is increasingly difficult to draw a line between the technical college teacher and his counterpart in the university. This applies particularly to senior staff and promotion prospects in FE are, on the whole, rather better than those of other teachers. Comparisons with equally responsible posts in industry are difficult to make but there is no reason to think that the FE teacher suffers in such comparison.

Quantitative requirements

Between 1956 and 1966 the technical teacher force tripled to nearly 41,500. It is expected to continue to expand in response to increasing demands for further education. With the increased intake to the Colleges of Education (Technical) for Certificate of Education courses and the rapid growth of the part-time training courses of the City and

Guilds of London Institute, an increasing proportion of new teachers in FE receive some form of teacher training. Although there is currently no training requirement for teachers in FE, about one-third of all new teachers have training experience. Inroads are also being made on the large number of untrained FE teachers, including graduates, already in post.

During the past 5 years nearly 5,000 United Kingdom students have been trained in pre-service courses and over 800 in sandwich courses, as well as about 300 overseas students mainly from Commonwealth countries.

## Administration

Since 1960 responsibility for the maintenance of the colleges has been undertaken by the local education authority for the area in which they are located. The colleges have been admitted to full membership of their respective area training organisation (Leeds, London, Manchester and Birmingham) which is responsible for setting the conditions of entry to the colleges, approving the syllabi, and controlling the examination for the Teachers' Certificate.

## Students

The minimum age for admission to the shortened Certificate of Education courses in the four Colleges of Education (Technical) is normally 24 years. Applicants should have graduate or equivalent qualifications (this is liberally interpreted) and should have appropriate industrial or commercial experience. Because of these requirements the colleges have a mature atmosphere. This is helpful to those students who are being required to do creative thinking about educational problems, perhaps for the first time. The selection of students lays stress on suitability of personality and teaching potential. University graduates may be accepted below 24 years of age in suitable circumstances.

Aims and methods

The general aims of vocational teacher training are to develop individual personality, to sow the seeds of a personal philosophy of education, to establish an understanding of the British educational system, and to develop efficiency in teaching. The emphasis is on the development of personality and not simply on the acquisition of teaching techniques, important though these are. An application of this principle is to be seen in the preference given to residential courses which afford greater opportunities for social education and corporate activities.

As the colleges do not accept applicants with less than a stipulated academic qualification, the whole of the course can be devoted to pedagogical considerations. The colleges do not offer advanced training in specialist subjects. In some respects, the courses are comparable with those in university departments of education in their concentration on pedagogical matters. This contrasts with the general teacher training colleges, which combine academic training and pedagogics.

Flexible time-tabling caters for the different categories of students and allows for progressive development of the course. Methods used include lectures, demonstrations, tutorials, group discussions, teaching practice (where theory and practice should be integrated) and written work assignments. Visits are made to schools and other educational institutions, to factories, offices and other places of interest both at home and, to a limited extent, abroad. An increasing amount of time is given to tutorials and directed private study. The students take every opportunity to broaden their general education through the pursuit of liberal studies and related activities.

## Courses

### (1) Pre-service initial training

These courses normally last one academic year. They include:

- (a) general theory of education,
- (b) general teaching methods and methods specially related to the teaching of subjects chosen with reference to the qualifications and experience of the students,
- (c) teaching practice (11 weeks),
- (d) social and industrial studies, and
- (e) liberal studies including English and speech training.

### (2) In-service sandwich courses

The four-term sandwich course is intended for existing teachers in technical colleges who are graduates, or have graduate equivalent qualifications. Courses usually, but not invariably, start in the summer term when students undertake one term of full-time study at a College of Education (Technical). For the next two terms they return to teaching in their parent colleges and return once again to the College of Education (Technical) in the following summer for a further term of full-time study. More recently courses have been started in January and September but as yet the majority of students start in the summer term.

### (3) Extra-mural courses

The extra-mural courses are part-time and sandwich courses intended for in-service candidates. The candidates must be graduates or possess graduate equivalent qualifications and are normally expected to attend full-time for four weeks during the summer vacation at a College of Education (Technical). They then return to their technical colleges and may spend one-and-a-half days per week at the extra-mural centre, returning to the College of Education (Technical) in the following summer vacation for a further four weeks' full-time course. There is some variation in the time-tables of the various extra-mural courses and at present such courses are provided by three of the Colleges of Education (Technical) in various parts of the country.

The courses cater for a wide range of technical groups:

(a) engineering, business studies, science and mathematics, general subjects - at Bolton, Garnett (London), Huddersfield and Wolverhampton,
(b) building - at Bolton and Huddersfield,
(c) mining, nursing subjects and health visiting - at Bolton,
(d) bakery, catering, nautical subjects, printing and women's trades (cookery and needle trades) - at Garnett,
(e) painting and decorating, tailoring and textiles - at Huddersfield,
(f) agriculture (including agricultural engineering and horticulture) - at Wolverhampton.

An example of a syllabus is appended as Annex I.

Shorter courses

The staffs of the colleges play a large part in the provision and staffing of a wide range of short courses. These are arranged by the colleges, by regional advisory councils, local education authorities and other bodies for part-time and full-time teachers. For several years, nearly 3,000 teachers have attended short residential courses provided by the four colleges. This extra-mural work is becoming a permanent function of the colleges, which are increasingly regarded as focal points in their area for the development of vocational teacher training in its widest context.

Examinations

There is no common national examination or certificate in education for the FE teachers. Garnett College (London) is associated with the Institute of Education of London University; Wolverhampton College with

Birmingham University; Huddersfield College with Leeds University; Bolton College with Manchester University. The examinations and certificates awarded reflect the policy of the particular institute of education. Cumulative assessment in place of written examinations is used in at least one college. Perhaps because of careful selection at entry, the failure rate in the four colleges is extremely low.

### Financial assistance for students

Students taking the one year, pre-service initial training have normally left their previous employment for the purpose of preparing for the teaching profession, and receive no salary until they take up a teaching post on completion of their training. Grants are usually available for the course of training, at a minimum amounting to free tuition. Grants for maintenance vary according to whether the student attends college as a day or residential student: they also have regard to individual circumstances.

### Textbooks

The Colleges of Education (Technical) attach great importance to the efficient use of library resources and their investment in this field has been considerable. Much of the study in the shortened courses is based on reading lists issued by the tutors. The use of prescribed textbooks is avoided in the curriculum.

### Research

Of necessity, the resources and staff of the Colleges of Education (Technical) have been largely concerned with increasing the proportion of FE teachers who have received initial training. The importance of curriculum research, and the fact that the colleges might function as the regional centres of such activity, have not been lost sight of. Increasing attention is being paid to defining the aims of FE and to evaluating good practice.

Each of the four colleges has a research committee which meets regularly to discuss pedagogical problems thrown up by neighbouring technical colleges.

## B. SCOTLAND

### Development of technical/vocational teacher training

The Advisory Council on Education in Scotland, which reported in 1945 on the training of teachers, recommended that short full-time or evening courses should be made available for teachers for local technical colleges and central institutions (advanced technical colleges financed centrally). At the time, the teacher-training system was stretched to capacity by the aftermath of the war years and it was not until 1949 that a teaching qualification was introduced for teaching in further education. The first courses of training directed towards this qualification began in 1950.

In 1966/67 Jordanhill College of Education in Glasgow introduced a new type of mixed pre-service and in-service course. This was designed to smooth the way for workers in industry and commerce who wished to become qualified technical/vocational teachers, but who were reluctant to give up their jobs without having any assurance of employment after training. The course consisted of a period of full-time training, lasting from Easter until July, after which the teachers took up their posts at the beginning of the new session. During the session, their teaching was supervised and they returned to the College for a further month's full-time training in July the following year. This 16-month sandwich course, with slight amendments, is now the only method by which students can be trained as technical/vocational teachers.

Teacher-training is not yet compulsory although many teachers have in fact been trained. Teachers in the technical/vocational education field may be trained and hold the qualifications already referred to; they may hold one or other of the various qualifications for teaching in day school; they may have taken training but, not having the necessary technical or educational qualifications, hold no recognised teaching qualification; or they may be untrained and (pedagogically) unqualified.

## Quantitative requirements

There has been an appreciable increase in recent years in the number of full-time teachers employed in technical colleges and central institutions in Scotland. In December 1968 the number was 4,148. Of these, 2,521 held teaching qualifications, and 572 of the 1,627 who held no teaching qualifications were employed in central institutions, where appointments are made on the basis of research ability as well as teaching ability. The number of teachers is expected to continue to increase in response to increasing demands for further education.

## Administration

Prior to the 1966/67 session, the training of technical/vocational teachers was undertaken at Jordanhill College of Education, Glasgow; Moray House College of Education, Edinburgh; Aberdeen College of Education; and Dundee College of Education. From 1966/67 onwards this type of training has been centralised at the Jordanhill college.

Since 1 February 1966 the central body responsible for co-ordination and advising the Secretary of State for Scotland on teacher-training has been the General Teaching Council for Scotland, whose membership comprises teachers elected by the teaching profession, appointed members of the local authorities, the universities, central institutions, the Church of Scotland and the Roman Catholic Church and the members appointed by the Secretary of State for Scotland.

While the general and technical qualifications for admission to training are prescribed by the Secretary of State, the colleges are responsible for the selection and admission of their own students.

Students

The minimum requirements for entrance to training leading to recognition as a technical/vocational teacher are that the student should hold a technical qualification such as a Higher National Certificate or a full Technological Certificate of the City and Guilds of London Institute. Unless he holds an associateship of a central institution awarded with honours, or a degree of a university in the United Kingdom, or of the Council for National Academic Awards, he must also hold passes in English and in mathematics or another approved subject at the Ordinary grade (taken at about 16 years of age) of the Scottish Certificate of Education. He must also possess such experience in industry or commerce as, in the opinion of the General Teaching Council, is necessary for the teaching of his subject or subjects.

Aims and methods

The Standing Committee on the Supply and Training of Teachers for Further Education said that "The basic requirements for teachers in further education centres are a sound grasp of their subjects, a good general education and high quality of mind and character. In addition, they should have an understanding of the principles of education and of the science and art of learning and teaching, an insight into the psychology of adolescence, with particular reference to the intellectual and emotional attitudes of the young workers, and effective techniques for teaching their different subject to students of the age, type, and background they are likely to meet in further education centres." The Committee considered that, ideally, all teachers in further education, irrespective of the sources from which they were recruited, should receive a measure of training and preparation to assist towards the development of these attributes and skills.

By and large the methods of training used in Scotland are those applied in England and Wales.

## Courses

Under the present sandwich course student teachers are given 2 months of full-time training before taking up teaching posts. Their teaching is supervised for the next 12 months after which they take another full-time course of 2 months to complete their training. If possible, the College offers the sandwich course more than once a year.

## Financial assistance for students

When the 16-month sandwich course was introduced the Secretary of State for Scotland recommended that employing authorities should appoint to their service students who intended and who were qualified to take the 16 months' course. Such an arrangement ensured that the students were seconded on full salary and in fact did their training on an in-service basis. This arrangement has now been widely adopted and the vast majority of students taking the course are in receipt of salary while doing so.

HUDDERSFIELD COLLEGE OF EDUCATION (TECHNICAL): Syllabus

During the first few weeks all students attend lectures and tutorials dealing with aids to study, clear thinking, and speech. All students attend a course in English and speech training. Subjects in the syllabus are dealt with in lectures and tutorials. There is guided reading; written work is required.

Under each section the broad scheme is as follows:

1. Principles of education

   Aims of technical education

   The development of educational ideas

   The growth and development of the English educational system with special reference to the growth of technical education

   The impact of psychological thought during the past century on teaching method

   Organisation and administration of education with particular reference to further education

   Social factors in technical education

   Comparative education with particular reference to technical education

2. Practice of education

   The principles of class teaching, including:

   (a) General principles with particular reference to the adolescent age range attending technical classes

   The learning process: individual differences; characteristics of growth and development, with particular reference to adolescence

   The teacher in the classroom: arousing and maintaining interest; class questioning; class management; discipline

Aids to teaching: use of blackboard and modern visual aids; radio, TV; models; the workshop, laboratory or practical room

Activity methods: projects, centres of interest; assignments; surveys; exhibitions; tutorial and discussion groups; visits

Methods of assessment: standardisation of marks; cumulative records

Records of work: organisation of a session's work and a lesson period; organisation of laboratory and workshop teaching; skill and the teaching of skills

(b) Methods of teaching particular subjects:

The particular subjects chosen vary according to the needs of students; e.g. for building students: mathematics, science, building construction, building geometry, trade theory, workshop practice, builders' quantities; for commercial students: English, history, geography, economics, law, commerce, office arts

Lectures and demonstrations concerning appropriate teaching techniques

Consideration of levels of general intelligence and special abilities essential to successful study of the subject; tests of achievement; prognostic tests of aptitude

The place of the subject in industry

The history of teaching the subject

3. Background of further education students

Interests, range of capacity, social environment, working conditions and general outlook

4. Industrial and commercial contacts

Visits to local industry and commerce are undertaken on a specialist basis

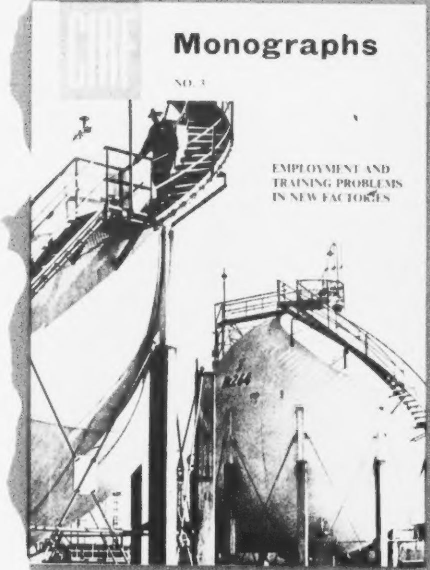
5. Teaching practice

There are 12 weeks of teaching practice. (Students practise in relevant departments of technical colleges, and a few in technical secondary schools; sandwich course students undertake teaching practice in their own colleges and schools)

6. Optional courses

A number of optional courses are arranged in the evenings, for example: religious instruction, sex education, film appreciation, music appreciation, English literature, drama, delinquency.

Students are assessed on a progressive scheme. The following points are considered: evidence of reading, contribution to tutorial discussions, written work, contributions to the corporate life of the College. Special subjects assessments are also given. Teaching practice assessments follow the usual pattern.



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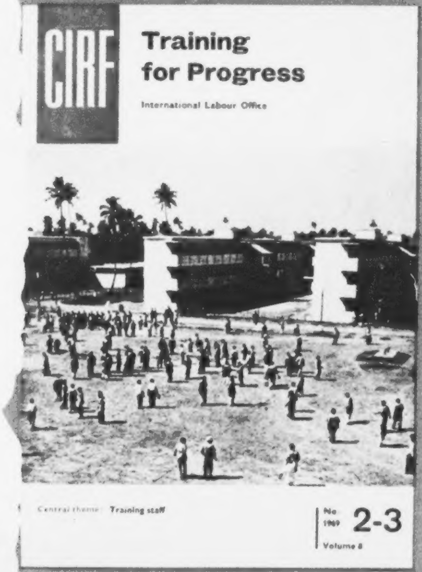

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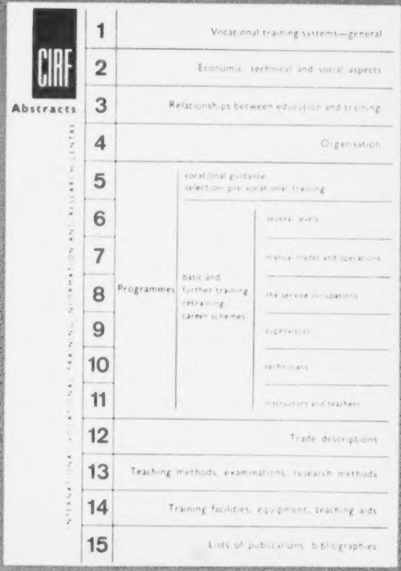

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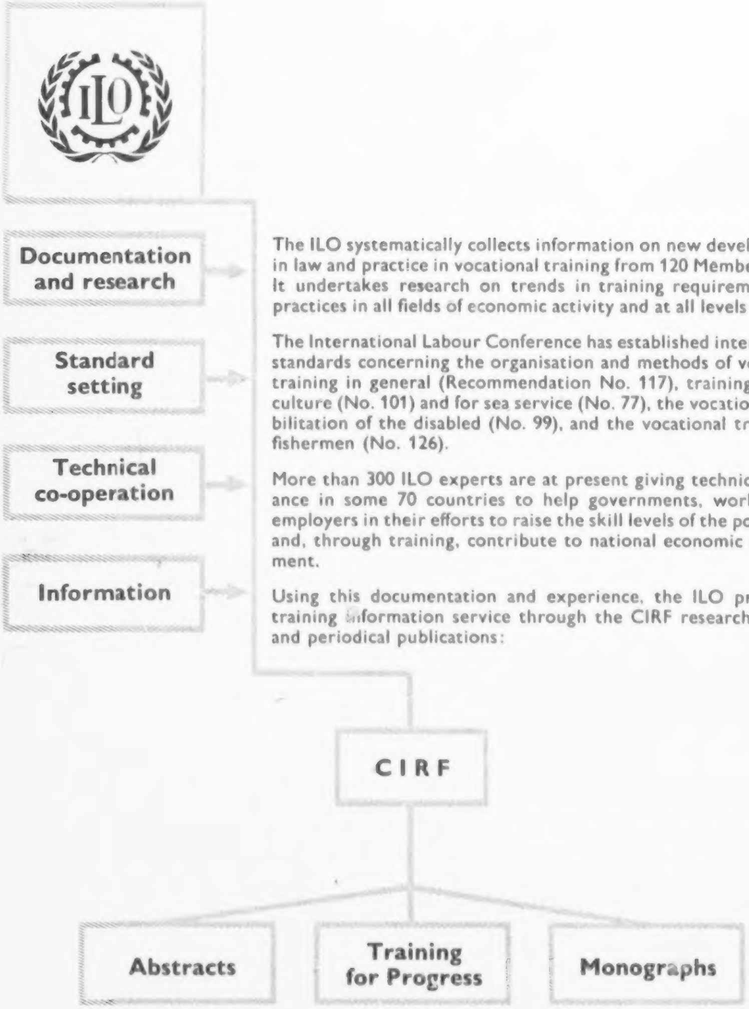
## ILO functions in vocational training


ILO
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The ILO systematically collects information on new developments in law and practice in vocational training from 120 Member States. It undertakes research on trends in training requirements and practices in all fields of economic activity and at all levels of work.

The International Labour Conference has established international standards concerning the organisation and methods of vocational training in general (Recommendation No. 117), training in agriculture (No. 101) and for sea service (No. 77), the vocational rehabilitation of the disabled (No. 99), and the vocational training of fishermen (No. 126).

More than 300 ILO experts are at present giving technical assistance in some 70 countries to help governments, workers and employers in their efforts to raise the skill levels of the population and, through training, contribute to national economic development.

Using this documentation and experience, the ILO provides a training information service through the CIRF research reports and periodical publications: